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DEPARTMENT OF STATE  
AGENCY FOR INTERNATIONAL DEVELOPMENT  
Washington, D.C. 20523

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AID-ILC/P-699  
April 30, 1968

MEMORANDUM FOR THE DEVELOPMENT LOAN COMMITTEE

SUBJECT: Panama - Panama City Water Supply System

Attached for your review are the recommendations for authorization of a loan in an amount not to exceed \$15,000,000 to the Instituto de Acueductos y Alcantarillados Nacionales for United States dollar and local cost of goods and services to assist in the construction of a new water supply system for Panama City, such system to be located in the vicinity of Madden Lake and having a normal capacity of 56 million gallons daily.

This loan proposal is scheduled for consideration by the Development Loan Staff Committee at a meeting on Tuesday, May 7, 1968.

Rachel C. Rogers  
Assistant Secretary  
Development Loan Committee

Attachments:

Summary and Recommendations  
Project Analysis  
ANNEXES I-V

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PANAMA CITY WATER SUPPLY SYSTEM

SUMMARY AND RECOMMENDATION

1. BORROWER: The Instituto de Acueductos y Alcantarillados Nacionales (IDAAN), an autonomous GOP agency.
2. SIZE OF PROJECT: \$23,000,000
3. A.I.D. LOAN: \$15,000,000 of which \$13,200,000 will be for U.S. procurement and \$1,800,000 will be for local purchases.
4. PROJECT DESCRIPTION: The project as developed under a feasibility study conducted by Greeley and Hansen Engineers, proposes the construction of facilities for a complete water supply system to provide a daily average flow of 56 MGD to Panama City. This system will operate separately from the existing Canal Zone facilities which have supplied water to the city since 1913.

The intake works will be located in Madden Lake and the raw water pumping station will be near the mouth of the Rio Puente, about 15 miles north of the City. A raw water pipeline will deliver water to the treatment plant located just northwest of the village of Calzada Larga. A treated water pumping station will be located at the treatment plant to pump water to balancing tanks located on the continental divide. These tanks will serve to keep water flowing evenly and will furnish two million gallons of storage. This water will flow by gravity from the continental divide to a storage reservoir located near Monte Oscuro from where the distribution system will be served by gravity.

Operation of this system will require operating personnel only at the treatment plant. The raw water pumping station will be operated by remote control from the treatment plant. Water levels at the surge tanks and storage reservoir at Monte Oscuro will be telemetered to the treatment plant. Thus, control of the entire system will be centralized at one location.

5. PURPOSE OF PROJECT: The project will meet the urgent need of Panama City for a new and sizable water supply system which can satisfy the demands of its rapidly growing urban area. Panama City is presently served by the water utility system located near the Miraflores locks within the Canal Zone territory. From this system, the Zone has agreed to provide a maximum of 30 MGD out of a total system capacity of 45 MGD. The daily use by the City is approaching the maximum supply available and projections now show that by the time the proposed project is ready for operation, demand will greatly exceed the water supply. It is thus anticipated that

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Note: US\$ 1 = Balboa/1

water-use curtailment will be instituted sometime beginning in the next year or so. The impact such restriction would have is apparent. It is possible that IDAAN may get some interim relief from recently discovered underground water sources near Tocumen Airport, but at present no geological studies have been made to determine the extent of such sources.

6. BACKGROUND OF PROJECT: This project is an outgrowth of a feasibility study made by Greeley and Hansen Engineers of Chicago, Illinois. The study itself was funded under the A.I.D. Feasibility Study Loan No. 525-L-008. The Study's initial recommendation of a project site at Paraiso, within the Canal Zone territory, was determined to be unsuitable, and thus the most reasonable location of Madden Lake was selected. (This matter is fully discussed in the loan paper.) The Report also recommended an initial capacity of 70 MGD for the new system. This matter was carefully evaluated in terms of cost and of available supply from the Miraflores system, and a final recommendation is made for a 56 MGD average capacity with provision for subsequent expansion. The IRR, approved by the CAEC on October 5, 1967, was for a 56 MGD system at Madden Lake. This project has been intensively reviewed and approval is recommended.
7. ALTERNATE FINANCING: No other source of financing is available.
8. STATUTORY CRITERIA: All statutory criteria have been or will be met (See Annex I).
9. RECOMMENDATION: Authorization of a \$15,000,000 development loan to IDAAN to assist in financing the engineering and construction costs of a 56 MGD water supply system to be located at Madden Lake, Panama. Included in the A.I.D. loan will be an amount up to \$150,000 to finance the cost of rate and management studies.
  - (A) Loan Terms. The recommended loan terms to IDAAN are: interest at  $3\frac{1}{2}\%$  per annum, such interest to be capitalized during the 5-year grace period, with loan repayment over 25 years. The GOP will have the option of receiving the benefits of the two-step procedure.
  - (B) Special Conditions:
    - (i) Prior to disbursement of funds, for other than engineering services, the Borrower shall submit:
      - a) evidence of arrangements for a study of IDAAN's water rates with a qualified firm acceptable to A.I.D.;

- b) evidence or arrangements for a study of IDAAN's organization, administration and operations with a qualified firm acceptable to A.I.D.
- (11) Prior to disbursement of loan funds for construction, the Borrower shall have:
- a) taken action to the extent of its legal capacity, to comply with the recommendations contained in the completed study of IDAAN's water rates, and will give written evidence that future actions recommended by the study will be taken on a prompt and timely basis;
  - b) taken action in accordance with recommendations contained in the completed study of IDAAN's organization, administration and operations, and will give written evidence that future actions recommended by the study will be taken on a prompt and timely basis;
  - c) submitted evidence of an agreement, expressed in writing with the Panama Canal Company on the volume and cost of water to be taken from the Miraflores system up to the 1988-1990 period;
  - d) developed, ready for implementation, an operating and maintenance program for the system serving the city of Panama. This shall include the provision for facilities, necessary skilled staff and training of additional staff as may be required;
  - e) submitted evidence that the full amount of IDAAN's contribution to the Project will be made available on a timely basis in order to assure completion of the Project within the scheduled period;
  - f) evidence that it has obtained, or will obtain, in accordance with a time schedule satisfactory to A.I.D., any real property rights including easements and rights-of-way, required for the Project; and
  - g) evidence of an agreement with the Panama Canal Company for the right-of-way on and use of Canal Zone property necessary for this Project.

C) Special Covenants

- (i) The Borrower will carry out its operating, maintenance and staff training program, and provide qualified and experienced staff as may be necessary and appropriate to operate and maintain the Project;
- (ii) the Borrower agrees to the extent of its legal capacity, to accept, install and enforce the recommendations made under the water rate study financed with the loan funds;
- (iii) the Borrower agrees to accept, install and enforce the recommendations made under the management study financed with the loan funds;
- (iv) the Borrower will continue its program of installation of water meters with the view of completing such installation for all connections before commencement of operation of the new water supply plant; and
- (v) the Borrower shall pay all debts of the Borrower due and owing to the Panama Canal Company within ninety (90) days from the dates of invoices submitted to the Borrower for such debts. ;

PROJECT COMMITTEE

Loan Officer: Norman Cohen, USAID/Panama

Engineer: Robert Adams, USAID/Panama

Project Coordinator: G.Ronald Peake USAID/Panama

City Planning Advisor: Daniel Driver, USAID/Panama

Economic Advisor: Martin Dagata, USAID/Panama

Legal Advisor: Regional Legal Advisor, ROCAP

CLEARANCES

John Banville: CDO, USAID/Panama

Ervan Bueneman: Development Officer (Urban), USAID/Panama

Charles Stevens: Chief Engineer, USAID/Panama

Golda Stander: AD Planning, USAID/Panama

Milton Eshleman: Controller, USAID/Panama

William Ketner: AD, USAID/Panama

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James Megellas: DOM, USAID/Panama

Drafted by: NCohen, RAdams, MDagata, DDriver

April 30, 1968

SECTION I - DETAILED DESCRIPTION OF PROJECT

A. - BORROWER

1. Name, Description, Management and Experience

The Instituto de Acueductos y Alcantarillados Nacionales (IDAAN) was established by Law 98 of 1961 as an autonomous State Agency with its own juridical personality, patrimony and autonomous internal system. IDAAN began operations on January 1, 1962. It provides the Republic of Panama with an overall public agency for planning, administration, maintenance and management of all matters pertaining to the supply of water and disposal of sewage. It has sufficient authority to establish rates for which are to be charged for these public services, subject to the approval of the Executive Branch, and is also empowered to borrow funds in Panama and from foreign institutions up to \$45 million with the security and guaranty of the GOP.

IDAAN has three major classifications of users: rural (500-2000 people); urban (over 2000 people); and the Cities of Panama and Colon. In Panama and Colon, IDAAN distributes the water received from treatment plants operated by the Panama Canal Company. In the cities of La Chorrera, Chitre, David and Bocas del Toro IDAAN operates the treatment plants and distribution facilities. In the other parts of Panama, IDAAN distributes the water obtained from ground water sources.

IDAAN is composed of a Board of Directors and four departments, i.e., Operation and Maintenance, Design and Study, Administration and Accounting and Inspection. Subordinate to the Board are the Office of the Technical Advisor, the Legal Division, the Internal Audit Division and the Public Relations Office. (Annex II, Exhibit I).

The overall management of IDAAN is vested in its Board of Directors which consists of seven members, the chairman of which is the Minister of Labor, Social Welfare and Public Health. The other six members include the Director General of Public Health, Comptroller General, one civil engineer from IVU, one sanitary engineer, and one representative each of the Urban Chamber of Colon and the Panamanian Association of Landowners. Their term in office is four years.

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IDAAN is managed by an Executive Director who serves as its legal and extra-legal representative. The Executive Director is appointed by the President for a period of four years with the approval of the National Assembly. The present Executive Director, Engineer Federico G. Guardia, was appointed in February, 1962 for an interim term which ended on October 31, 1964. He was then reappointed for a new full term which will expire on October 31, 1968.

IDAAN is considered to be one of the best administered Government institutions in Panama. In general, the USAID's experience has been satisfactory with respect to both the technical aspects of engineering and construction and the administrative aspects. Some weakness has been noted regarding IDAAN's fiscal management and planning, but steps are now being taken to improve this situation, and further provision and more funds will be made available in connection with this loan to strengthen the entire management and administrative organization and capability of IDAAN.

2. Personnel Needs for New Supply System

It is projected that initially, there will be needed approximately fifty people (superintendent, operators, chemists, plumbers, drivers, janitors, etc) to operate the treatment plant and pumping stations. (Annex II, Exhibit 2).

To provide the necessary personnel, IDAAN will both hire and train new people and transfer existing staff, where possible and where such transfer will not jeopardize IDAAN's other operations.

IDAAN is now developing eligibility and job requirements for the senior personnel of the new plant and is preparing to expand its existing training program which it has maintained for its people on all levels. They have provided scholarships and sponsored seminars and short courses for the employees with the purpose of developing the best technical skill among its personnel. For example, pump operators will be sent to take a course on pumping stations and treatment plant operators and chemical controllers will take a course on water treatment plants, prior to the beginning of operations. Other lower-level personnel will be assigned to the various existing IDAAN plants for on-the-job training. High-level staff will be given post-graduate engineering courses and short-term courses on various phases of plant operation.

### 3. Previous External Assistance to IDAAN

- a) Assistance from U.S. - Since 1957, the U.S. Government, through both ICA and AID, have made five loans to IDAAN totaling \$18,037,596. Four of the loans have been for the purpose of improving the distribution and collection of water and sewerage in Panama City, and one loan is for the improvement of drainage in Colon. One loan is complete, one almost finished, two are under active implementation and one is just commencing. In general, each loan is being implemented in a prompt and satisfactory manner. Included as a part of the loan documents are two maps showing locations of water and sewer lines constructed with assistance of AID loans for Panama City. At the present time, IDAAN is current in its financial obligations to AID and the Panama Canal Company.

Below is listed each AID loan to IDAAN:

<u>Loan No.</u>	<u>Purpose</u>	<u>Date Signed</u>	<u>Amount</u>
525-B-001	Water/Sewer - Panama City	4/29/57	\$ 1,981,996
525-L-005	Water/Sewer - Panama City	2/6/63	6,000,000
525-L-011	Sewer - Colon	7/16/65	400,000
525-L-019	Water/Sewer - Panama City	1/4/67	3,055,600
525-L-026	Water/Sewer - Panama City	7/7/67	6,600,000

- b) Assistance from IDB. IDAAN has received two loans from IDB. The first loan of \$2,762,000 signed on May 31, 1962 was designed to help finance the expansion and improvement of water supply systems in the smaller urban cities of Panama. Loan funds have been fully disbursed and IDB has concluded that the project works were well planned and properly constructed. IDB's second loan to IDAAN was signed on May 29, 1967 and was in the amount of \$3,450,000. The purpose of this loan is to further improve water supply systems for rural and small urban areas, and to expand the sewerage system of Chitre which in its entirety will benefit about 45 towns. No substantive implementation of this project has been started.

**B. - HISTORY AND BACKGROUND****Early Period 1903 to 1945**

The signatories of the treaty of 1903 were well aware of the fact that a dependable supply of potable water was of paramount importance to the construction and operation of the Panama Canal. Accordingly, by the provision of Art. 7 of the 1903 treaty the U.S. was charged with the responsibility of building such a system to supply the needs of the Canal and also the needs of the cities of Panama and Colon.

In 1910, through an agreement signed by both parties, the detailed procedures for carrying out these obligations were established. The territorial limits of the city of Panama were not defined in the treaty of 1903 or in the agreement of 1910, but were indicated on Map #118 in the Annual Report of the Isthmian Canal Commission for 1910. These limits were later extended by Decree of April 16, 1917 to include all areas east of the Tumba Muerto River, which roughly follows Tumba Muerto Road, or as it is now officially known Manuel Espinosa Batista Avenue. These limits remained.

During the early construction period of the Canal, potable water was furnished by distilling plants at various locations at each side of the Isthmus. These plants consisted of old French condensers, boilers and tanks.

Construction of Mt. Hope water purification plant on the Atlantic side was began in 1912 and it was placed in service in 1914. The Miraflores plant on the Pacific side was initiated in 1913 and it was placed in service in 1915.

Article 7 of the 1903 treaty, and the agreements of 1907 and 1910 while dealing primarily with water, provided that the revenue derived from the sale of water to individuals in Panama City and Colon would be used to pay for the cost of paving streets in these cities and for construction and operation of a sewer system. All of this within the territorial limit as per previous paragraph.

The water rates were designed to cover debt service at the rate of 2% per annum, amortization of the distribution lines in Panama and Colon, operating and maintenance cost and enough cash to maintain a working revolving fund of \$200,000. Anything in excess of this was considered surplus and was utilized for the construction of additional water and sewer lines and street extensions within the city of Panama. Extensions of water and sewer system into the suburbs of Panama City was from the beginning a responsibility of

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the GOP. This was necessary since the original agreement with the U.S. covered only urban Panama City and Colon.

The agreement of 1907 provided that the U.S. obligation as it applied to the street pavement and maintenance would last for 10 years while those provisions which pertain to water would cover 50 years or until 1957. For a variety of reasons the GOP did not assume responsibility for streets until they were transferred to Panama in 1945.

As early as 1942 the GOP expressed a desire for an earlier return to Panama of the ownership and control of all public utilities including water, sewer and street. Accordingly several discussions between the two countries were conducted which culminated in the signing by the President of the U.S. of Executive Order #9551 on May 16, 1945, authorizing the Panama Canal Company to transfer all of these utilities to the GOP. Ownership was to be transferred to Panama without any further amortization. However, a period of transition was necessary and under the terms of a new contract a method of operation was established.

#### Management Contract period 1946 - 1953

A Management Contract was agreed upon and signed on December 28, 1945 to take effect on January 1, 1946.

Under the terms of this contract it was agreed that existing management practices and procedures would be continued for an indefinite time without substantial changes except in respect to financial matters. The contract stated that "this contract is for the purpose of making necessary provisions for the continuation of the management of the water and sewerage systems and of the maintenance, repair and extension of the street pavements of the cities of Panama and Colon (excepting certain areas within Colon which remained under the control of the Panama Canal Company) by the Panama Canal Company but for the account of the Republic of Panama."

With the signing of the contract all rights, title and interest of the U.S.A. in and to the water and sewerage distribution and collection systems in the cities of Panama and Colon were transferred to the Republic of Panama. At the same time the amortization on the original capital investment within Panama, was discontinued.

This contract could be terminated by either one of the parties on condition that a minimum of three month's notice was given. Panama exercised this right in 1953 and on July 1, 1953 all management function for all public utilities was returned to Panama. The three areas in Colon known as New Cristobal, Colon Beach and De Lesseps were retained by the Panama Canal Company and were transferred to the GOP in 1959.

DACA period 1953 to 1956

Following the termination of the Management Contract in 1953 operation of all public utilities were taken over by the City. Water & Sewage was undertaken by the Departamento de Acueductos, Cloacas y Aseo (DACA). This organization had come into being on May 8, 1953 under Law #11 of that year. It was simply a branch of the Ministry of Labor, Social Welfare and Public Health and had no degree of autonomy.

CAAP Period 1956 to 1961

In 1956 under Law #65 DACA was eliminated and its functions were transferred back to the parent Ministry, except as they referred to the City and suburbs of Panama City.

To operate the water and sewer in the latter areas a new organization called Comision de Acueductos y Alcantarillado de Panama was created. CAAP was a semi-autonomous entity reporting to the Ministry of Labor, much in the manner of other semi-autonomous organizations that are functioning today.

IDAAN Period 1961 to Present Time

By Law #98 of 1961, IDAAN was created as an autonomous entity with an independent budget and capitalization. IDAAN assumed all functions of water and sewage nationwide, except for the smallest villages (under 500 people) which are still under the auspices of the Minister of Labor, Social Welfare and Public Health.

On June 11, 1965, IDAAN requested funds from AID Loan #525-L-0008 for a feasibility study for additional water supply for Panama City and its environs. The request was approved and in January 1966, IDAAN contracted with the firm of Greeley and Hansen to make studies and prepare a feasibility report on the requirements for water supply until the year 2020. The report was completed in March 1967 and together with amendments thereto, forms the basis for the proposed project. It indicates that present water treatment facilities at Miraflores will be inadequate before 1970. A new source of water to supply the growing needs of the City of Panama is required. This loan is designed to help provide Panama with this supply of water.

**C. - COUNTRY TEAM COMMENTS**

The demand for potable water in Panama City is rapidly reaching the maximum which can be supplied by the Canal Zone Miraflores Locks System, i.e. 30 MGD. Based on past, present and projected water usage, it is assured that before the new water plant will be completed at Madden Lake, the demand will be greater than the supply. The need for an adequate supply of potable water is obvious and is discussed in detail in Section I.F. The Country Team and the GOP have placed the highest priority on the development of this project and consider it to be vital to the health and well being of not only the City of Panama, but the entire country.

**D. - ALTERNATE SOURCES OF FINANCING**

On June 1, 1967, both the Export-Import Bank and the Inter-American Development Bank advised that they were not interested in financing this project. On February 2, 1968, the IBRD also advised that it was not interested in financing the project.

**E. - ENGINEERING ANALYSIS****1. General Description of Project**

A new water supply source is to be developed to provide the additional potable water service to the City of Panama necessary to supply increasing demands from growth and expansion.

The new supply will draw from Madden Lake on the Chagres River about 15 miles north of the City, and will augment and partly replace existing service being provided by the Panama Canal Company water system from Miraflores Lake in the Canal. Only the intake facilities will be located in the Canal Zone. The new system will provide a firm average day supply of 56 million gallons per day (MGD) as the first stage of an ultimate 212 MGD system. This initial average day supply of 56 MGD is expected to meet the demand of Panama City up to the year 1980 while the ultimate system is intended to meet needs projected for the year 2020. After 1980, the borrower may purchase an additional 23 MGD from the Panama Canal Company thus providing a 79 MGD average-day supply to meet the projected demand through 1988 with the first stage facilities. Madden Lake access and water rights will be negotiated by the Government of Panama with the Panama Canal Company. The evidence of such rights will be required as an initial condition precedent of the loan. All other properties will be subject to exercise of eminent domain rights within the Republic of Panama. The project will consist of the following components:

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1. Intake structure in Madden Lake
2. 73 MGD (Maximum day flow) raw water pumping station
3. 54-inch conduit from Pump Station to Treatment Plant (about 110 meter elevation) (2,000 yds.)
4. Electric power transmission line (5 miles) and sub-station (5 MW)
5. 73-MGD treatment plant and pumping station, adjacent to Madden Lake
6. 54-inch conduit from Treatment Plant (7,300 yds) to continental divide (About 134 meters elevation)
7. 500,000 gallon balancing tank at crest of continental divide
8. 54-inch gravity conduit from continental divide (10,200 yds) of City (about 55 meters elevation)
9. 10 million gallon storage reservoir at edge of City
10. 66-inch transmission conduit to distribution system connection at intersection of Tocumen & Transisthmian Highway (1,000 yds)
11. 48-inch trunk main from above intersection to Rio Abajo (1,900 yds)
12. 36-inch trunk main from above Rio Abajo line to La Carrasquilla (3,300 yds)
13. 24-inch trunk main from above La Carrasquilla line along Via España to Hotel El Panama intersection (2,350 yds)
14. 24-inch and 12-inch (900 yds) trunk mains from existing system at Automobile Road along 4th. of July Avenue to connect with existing system serving old west end of Panama City.

Note: All distances noted above are approximations.

These facilities plus engineering, interest during construction and special rate and management studies have an estimated cost of \$23,000,000 of which the borrower will contribute \$8,000,000 (Refer to Annex II Exhibit 3 and Exhibit 4. . A loan from AID in the amount of \$15,000,000 is requested in order to complete financing of the project. All land payments will be made from the borrower's contribution. All other facilities will be paid from loan funds and borrower's contribution on a relative percentage basis proportionate to respective input. Electrical and

mechanical equipment, metal piping and valves, all steel and rubber products, and engineering and other professional services will be purchased from the United States at an estimated cost of \$13,200,000. All other items will be produced and purchased in the Republic of Panama at an estimated cost of \$9,800,000.

## 2. Engineering Plan

### (a) Technical Feasibility

The technical and economic feasibility of the project was studied by the engineering firm of Greeley and Hansen, Chicago, Illinois, under contract to the Government of Panama. Their report was published in February 1967, and subsequently supplemented in January and February 1968. Official memorandae of discussions and correspondence (Annex II, Exhibit 5 ) between the USAID and the Panama Canal Company provide additional data on the likely alternative projects and reflect the concurrence of the Panama Canal Company with the project for which financing is requested.

#### (i) Demand:

The City of Panama is the principal urban center and is the capital of the Republic of Panama. The City is presently expanding to the north and east along corridors served by the highway across the Isthmus to Colon and by the highway to Tocumen International Airport. Present water supply is obtained from the Panama Canal Company under arrangements dating from the construction of the canal. The allocated portion of the present source near Miraflores Locks and its main supply conduits into Panama will be fully engaged to capacity in 1968 as the borrower completes various expansions in distribution piping now underway. With additional population requesting service and with expected increases in rates of domestic and commercial consumption (possibly to 99 gallons per capita per day by 1983), Panama must have an additional source of water soon, if growth of this urban center is to continue.

#### (ii) Capacity:

The consulting engineers recommended a larger first stage of 70 MGD average day supply with cost estimated at \$20,950,000 (distribution lines, special studies and subsequent further upward cost revision for inflation not included) designed to meet estimated needs of 1988, a design period of 20 years. The design period for the project as finally agreed to is reduced to 12 years (1980) in order to minimize initial

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( Annex 11 Exhibit 6 ). The 56 MGD plant will effectively double the presently available supply and the additional 23 MGD of the existing Panama Canal Company supply could be available to bring the overall system to 79 MGD average day capacity, when required.

(iii) Analysis of sources

With a high rate of rainfall and hilly terrain, many low volume catchment areas are available for local use within the areas in which expansion of the system is anticipated. However, these local surface flows and ground water aquifers are inadequate for expected demand, and consideration, has therefore, been given to a unified urban system which could draw upon surface runoff of one or more of the major river basins accessible to Panama City. The engineering report considered the Pacora and Bayano Rivers to the east, the Panama Canal to the west, and the Chagres River to the north of the City.

Several possible projects from these rivers were considered and found generally technically feasible. The apparent best projects on the basis of cost are a raw water intake on either the Canal above Pedro Miguel Locks (Paraiso), the Chagres River at its conflux with the Canal reservoir (Gamboa), or the Chagres River in its reservoir above Madden Dam (Madden Lake).

The 56 MGD project at Paraiso would in effect be an expansion of the existing Miraflores system and was the project recommended (next recommended was Madden Lake site) by the engineer with a first cost of \$14,488,000 (not including distribution, special studies and further revision for inflation) and an average annual cost of \$2,058,000. However, the Panama Canal Company has subsequently advised that improvements are expected to be made in the Paraiso area of the Canal within the next 15 to 20 years in order to accommodate increasing ship traffic (See Annex 11, Exhibit 5 ). These improvements are expected to require re-siting of the proposed pumping facilities at that time and disruption of water service. Considering possible other hazards of disruption of operation at Paraiso by passing ships, the borrower, the Panama Canal Company and

**(iv) Rates**

The Panama Canal Company through the Miraflores system presently delivers 23 MGD average day flow and 30 MGD of water to IDAAN at maximum day flow for a price of 9.3¢ per 1,000 gallons. IDAAN customers in Panama City presently pay for water at the following rates on bi-monthly billings:

for the first 34,000 gallons - 45¢/1000 gal.  
for the next 306,000 gallons - 40¢/1000 gal.  
for amount over 340,000 gallons - 35¢/1000  
gallons

The new system will cost IDAAN an average of 13.5 cents per 1,000 gallons through 1980. After debt services are completed in 1998, IDAAN's costs on the new system will drop to operating costs of 6.0 cents per thousand gallons. Average cost of new system through 1998 is 12.3 cents per thousand gallons. (Refer to Annex II Exhibit 7).

As the borrower must carry the fixed charges and as the Madden costs per thousand gallons declines rapidly as the use thereof increases, it is planned to serve all of the City from the new source upon its completion. IDAAN will be in the unusual and valuable position of having considerable reserves available from the Panama Canal Company system. However, as an operational question the IDAAN must study and discuss with Panama Canal Company the comparative costs of maintaining reserves or service of an average 23 MGD for use some time after 1980 versus the possibility of operating wholly from the new source and incurring additional capital costs for expansion in 1980, earlier than would otherwise be necessary without Panama Canal Company reserves.

**(v) Hydrology of Proposed Project**

The proposed project to be financed by the requested loan will draw a maximum of 224 Acre feet per day and an average of 172 Acre feet per day from Madden Lake. The ultimate proposed installation would draw a maximum of 850 Acre feet per day and an average of

650 Acre feet per day from the Lake. Based on records of the past 70 years, this Lake could have supplied these amounts of water during all seasons of record, The Lake also supplies energy for generation of electric power for the Panama Canal Company system and its discharge forms a portion of the reservoir upon which is based the draft and number of lockages on the canal. The Panama Canal has indicated its willingness to allow the necessary withdrawals and provide right-of-way to the borrower at no cost.

(vi) Electric Power

A control center for the project will be installed at the treatment plant. All operating facilities will be telemetered to this control center. The Government of Panama (IRHE) is installing a 37.5 MW generating plant at Las Minas Bay on the Atlantic side. This power will be available in 1968 and transmitted across the isthmus through existing power transmission facilities of the Fuerza y Luz Company (a subsidiary of American Foreign Power Company). Electric Power (5 MW) for telemetering and for operation of the pumps and the treatment plant will be supplied by running a connector some five miles to the existing 13.8 kV transmission line of Fuerza y Luz on the Trans-Isthmian Highway. Additional generation is needed before supply of power can be considered firm. The GOP is negotiating financing of an additional thermal plant at Las Minas and of a hydro plant on the Bayano River some 50 miles east of Panama City. The additional plant at Las Minas could be available by 1971 if financing is arranged in 1968. The requested IDAAN project will include several diesel generators at site, sufficient for operational needs of the first two years and for purposes of reserve thereafter.

(vii) Cost/Benefit

The proposed Madden Lake project compared with the most reasonable alternatives, the Gamboa project, represents the better possible alternative. The 56 MGD Madden Lake project has a first cost of \$17,291,000 and an average annual cost of \$2,254,000.

56 MGD Gamboa has a first of \$20,269,000 and an average annual cost of \$2,487,000 (costs used here are those from the engineering report of January 1968 for purposes of comparison see Annex II Exhibit 8).

(viii) Estimate of Cost

The estimates of costs for materials and for construction services are based on data from works of a similar type and differing magnitude performed recently in Panama under competent engineering management. Costs were determined at 1966 price levels and were projected 14% as a contingency for possible price increases and design refinements during the construction period 1968-1970. An additional 5% has since been added to compensate for possible price increases through 1971. The estimate contains an additional 10% finally for overall contingencies. \$150,000 has been added for professional services to perform a management and water rate study and \$13,000 has been added for short-term participant trainees in operation and maintenance. 1% of Construction Costs (\$168,000) has been added for start up costs, spares, maintenance equipment and facilities. The estimate is well reasoned and is judged adequate. Estimates noted for comparative purposes do not include the above adjustments for contingencies, management, maintenance, nor training costs. Refer to Annex II Exhibit 4).

(ix) Distribution

The engineering study of the recommended project provides connection of supply to the distribution system at the projected load center of expected growth of the City. Sections of the Canal Zone are included for purposes of this study.

As the system will be supplied from a new point, additional trunk mains are required to provide balanced flow. The consulting engineer has designed an overall network to meet expanding needs of the next few years. The project for which funds are requested will provide one sector of this network, a new pipeline from the intersection of Tocumen and Trans-Isthmian Highways through the center of the City to the Hotel

El Panama providing interconnections to the existing pipe network along the way.

A transmission link is included to tie in the three sections of Santa Ana, San Felipe, and Chorillo at the West end of Panama City, while the engineering report did not recommend this link until 1990, subsequent studies have shown its immediate economic and technical feasibility. With an average consumption of 8.2 MGD through 1980, IDAAN will save some \$ 103,500 per year by serving these areas from the new source (Annex II Exhibit 9 ).

(x) Drainage

With the completion of some \$7 million worth of sewer piping which is starting with AID assistance in 1968, most of the City will have sewer service. Additional service must be provided in due course as housing developments are put in and squatter areas are improved. However, the additional water supply proposed by this project should not exert undue pressure on the sewage collection system.

(xi) Meeting Section 611

Adequate engineering studies have been carried out to determine all pertinent factors on which consumption demand is stated and projected. Preliminary engineering studies have clearly established the capacity, location, composition and cost of the recommended project and its feasibility. The Madden Lake project will not be adversely affected by any of the treaties now under discussion between the Governments of Panama and of the United States.

(b) Engineering Plan for Implementation of Project

(i) Surveys

Topographical and property surveys must be performed to locate facilities on property maps and to indicate features which will influence costs such as volumes and types of rock and earth. The routes for the transmission conduits must be surveyed to determine with precision the best alignment and contours to be followed. Good maps of the area are available from the Government of Panama mapping service (Cartografia) at a scale of 1:25,000 with 5 meter contour

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intervals. The preliminary siting and routing have been developed from these maps. The transmission conduit will parallel the Trans-Isthmian Highway for some 7 miles from the village of Alcalde Diaz. Accurate records of the profile of this highway and aerial photographs of the entire route to a scale of 1:5000 are available. Field surveys will be carried out on the ground from the Lake to the highway at Alcalde Diaz to obtain topographical information to a more precise degree on the order of one meter intervals or less where required. The entire route will be surveyed for right-of-way and foundation borings will be taken for all structures.

Sufficient experienced personnel and survey equipment are available in Panama to carry out these surveys under the direction of the project engineering firm.

(11) Design

The design of the system is fairly straight-forward. Most of the operating facilities will be similar to installations in the southern United States. While it is expected that the Government of Panama may concern itself with sufficient right-of-way and water rights for the ultimate system, only the intake structure and the raw water pumping well will be sized at this time above the nominal size of the project for which loan funds are being requested. The intake structure will be designed and built at this time for ultimate 276 MGD maximum day service in order to accomplish significant economies in tunnel construction. The treatment plant site is presently accessible by a road adequate for construction purposes and subsequent operation.

The design will place the transmission conduit above ground in order to lower first cost and to facilitate maintenance. Trunk mains will be below ground. No concrete pressure pipe of this nature has yet been produced in Panama; however, larger diameter steel pipe has been produced locally in small quantities for the small Yeguada hydroelectric plant. Alternate bids will be taken for concrete and welded steel pipe, lined and protected with coal-tar enamel.

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Specifications will be prepared with stringent requirements for testing and inspection. The design work will be in terms of U.S. standards and specifications of the American Water Works Association. A minimum standard road will be built alongside the water transmission line for permanent access purposes.

The electric power transmission line and substations will be designed to standards of the Fuerza y Luz system which is comparable with U.S. systems for similar service. Auxiliary generators will be installed at the treatment plant to provide reserve for 50% of maximum demand.

Trunk mains within the City will be placed underground. The transmission link to the Western end of the City will require careful analysis of the working pressure which the old piping can accept. Pressure reducing valving may be required.

Panama has a small nucleus of well trained engineers which is generally not expanding at a rate corresponding to needs of the development program. A number of these engineers have been employed on IDAAN staff and have performed detailed design work on expansion of the distribution system in Panama City with consultation and review by a U.S. engineering firm. The IDAAN engineering staff has also designed small water systems for some 57 towns and villages under financing from the Inter-American Development Bank.

This process has resulted in production of designs and bid documents for urban distribution piping of gradually increasing and generally acceptable competence, and has developed for IDAAN an ability to design and install works on its own in its continuing program for towns and villages, and to reach sound management decisions on their general program. However, this staff development within IDAAN has resulted in duplication of certain engineering costs, diffusion of responsibilities, and some delays in performance. IDAAN does not presently have sufficient staff capacity nor the experience to prepare detailed design and specifications for the recommended project. IDAAN recognizes the need to supplement its own organization with job related consulting services.

The services of a qualified U.S. consulting engineering

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firm probably with local associates will be engaged by IDAAN with the responsibility to prepare detailed designs and specifications, analyze bids, recommend awards, and monitor construction on behalf of IDAAN. During construction, the consulting firm will function as construction contract management agent for IDAAN in inspecting construction, preparing change orders, certifying vouchers and other contract documents for subsequent action by IDAAN. 12% of the estimated construction cost is allocated to engineering services.

(iii) Construction

All items to be imported are commonly available in the United States and are items in which the U.S. is able to compete effectively in Panama. Most equipment and materials required can normally be obtained with reasonably short delivery schedules. The pumps, the transformers, insulators, large valves, and hydraulic and electric controls are among the items which will require a fairly long period for delivery. However, all items should be obtainable as required to meet the projected schedule for construction.

As the increasing demand requires prompt completion of this project, the project will be bid and awarded in relatively large construction packages, preferably with one, but possibly with two to three prime contractors.

The consulting engineering firm will prepare forms for and will evaluate qualification of bidders. Due to the size of the project it is probable that Panamanian contractors will need to bid in consortium with major U.S. contractors whose interest will be solicited. A qualified member of the consulting engineering firm will be retained as advisor to the plant operator to start up and direct operations of the new system for a period of six months after completion.

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(iv) Management

The IDAAN distribution system is being doubled in extent through several projects now underway. In 1969, IDAAN expects to move into a new central office now under construction. With the completion of the new supply system in 1972, IDAAN will have added some \$39 million in plant in 5 years and will be serving an increase of some 15,000 customers over the same period. Much of this increase will be related to changing patterns of land usage due to urban growth and expansion.

While IDAAN has a nucleus of well-trained professionals, they are faced with a considerable problem in building their organization during this period and in carrying out and administering an appropriate rate structure for fiscal responsibility. \$15,000 is allocated in the estimate for the services of qualified management consulting and water rates firms which will carry out an operation and methods study and a rate study for IDAAN and assist it in carrying out the recommendations. These services are anticipated to extend over a period of 12 to 15 months beginning in the first year of the project. A reconnaissance report of management needs was prepared in October 1965 by the Pan American Health Organization and will be considered by IDAAN in developing the scope of services for management consultants.

\$13,000 is allocated in the estimate for the assignment of IDAAN personnel for short-term participant training courses in the United States in plant operations and maintenance of water supply system.

(v) Time table

The sequence of probable progress on this project is noted in chart form at Annex II Exhibit 10. In general, it is expected that IDAAN could solicit proposals for management and for engineering services at the time the loan is authorized and could negotiate a contract for engineering services within three months of receipt of proposals or by the date of signing of the loan agreement, whichever is later. Detailed designs should be available for bidding purposes about 17 months after the engineer receives notice to proceed.

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About three months would then be required for receiving bids and signing the contract. Construction would be carried out over a period of 22-24 months.

This schedule covers a period of 42 months from notice to the engineer to proceed and is considered reasonable provided no unusual difficulties are encountered in negotiations, in procurement, or in the field. Given the need to bring this new supply into early service, it is anticipated that IDAAN will aim to meet this schedule.

This schedule would place the new supply in service in early 1972. Forecasts of demand for water indicate that, with supply limited to the existing 30 MGD through that date, some 10 MGD of growth in demand will have to be suppressed until the new system comes into service. IDAAN is presently drilling a number of test wells to determine if it will be possible to meet a portion of this increasing demand during this period.

### 3. Maintenance

IDAAN is presently responsible in Panama City for water and sewer trunk lines, several water reservoirs, and pumping stations. Operations and maintenance are conducted from one central area at which are small workshops and parking area for vehicles and equipment, a meter repair shop, a warehouse with spares and supplies, offices with a radio telephone system for dispatch of work crews, a large storage yard in which is kept a small stock of pipe for use in repairs and connections, and an accounting center for meter billings and service connections. The accounting office will be moved to the new IDAAN building upon its completion.

The present organization consists of some 200 personnel, 20 trucks, 1 crane, pumps and tools, and a small stock of spares additional equipment, shops and materials are available and are purchased from the local market if required. The annual operations and maintenance budget runs about 4% of fixed assets and is budgeted at \$1,367,000 for 1968.

Personnel skills are adequate; however, the operation is somewhat inefficient. By U.S. standards the shops are not well laid out nor well equipped. However, commercial shop facilities are available and have been used where necessary. IDAAN has amply demonstrated its competence in dealing with emergency maintenance on the existing system, especially on water mains, and has an adequate history of maintenance of

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meters. Progress is being made in developing records of piping and valving installed in earlier years; this is a pre-requisite to planned maintenance.

The present superintendent of IDAAN operations and maintenance has been nominated to attend a special course in system management which will be held this summer at the University of Akron, Ohio under AID sponsorship; four more participants will be sent for special short training in plant operations and systems maintenance during the period of project construction. Special attention will be given in this training to development of preventive maintenance and, in consultation with the project engineer, re-organization to cope with demands of the new system.

Funds are included in the estimate for construction and equipment of small workshops at the treatment plant, for a supply of spare parts adequate for 1-year operation, for radio telephone equipped vehicles to service the new system, startup materials, and salaries of operating personnel in training during final 12 months of construction.

The staffing and budget proposed by IDAAN and their consultant for operations and maintenance of the new system are considered adequate. Maintenance of the electric power facilities will be contracted to Fuerza y Luz or other competent group. The consulting engineer will be required to develop with IDAAN an integrated maintenance plan for the entire Panama City system as a condition precedent to disbursement for construction costs.

## F. ECONOMIC ANALYSIS

### 1. Trends During the Alliance Period

Panama's economic performance during the period of the Alliance thus far has been very impressive. On the average, annual increases in GNP exceeded 9 percent from 1960 to 1966. (See Annex II, Exhibit II). Notwithstanding this rapid growth, price level increases were minimal, averaging 1 percent annually. Thus, Panama's real per capita growth, despite a population increase of over 3 percent, well exceeded the Alliance growth target of 2.5 percent annually.

Supporting this growth were a substantial expansion of credit and domestic savings, vigorous private investment activity, and considerable increases in the country's capacity to import, supplemented by a strong flow of external financial resources. In terms of growth, the leading sectors were manufacturing; banking, insurance and real estate; transport and communication; and the construction sector. The agricultural sector retained its position as the most important contributor to GNP and, itself, grew at a moderately high rate due in large part, however, to substantial increases in the production of bananas.

The fiscal performance of the Central Government was generally good with marked increases in revenue resulting from a major tax reform in 1964. Central Government consumption expenditure, however, showed considerable increases as well.

## 2. Current Situation (1966-1968)

### (a) General

In 1966, GNP in current prices increased by well over 10 percent. Most significant was an over 40 percent increase in gross fixed investment.

Domestic credit continued to expand rapidly with impressive increases in domestic time and savings deposits contributing significantly to the banking system's credit potential.

Country-wide, in spite of a large increase in the labor force, unemployment was reduced from 7.4 percent in 1965 to 4.9 percent in 1966. Unemployment in the Metropolitan Area (primarily Metropolitan Panama City and Colon) was reduced from 12.4 percent in 1965 to 8.3 percent in 1966. Underemployment increased moderately in the Metropolitan Area to 12.9 percent in 1966. (See Annex II, Exhibit 12).

Available data concerning Panama's economic performance in 1967 are sketchy, but appear to indicate a continued high growth at a high level though likely lower than that of 1966. Incomplete data point to an expansion of domestic credit on the order of that of 1966. Compared to the performance of recent years, growth in commodity exports appears to have weakened but the important receipts from travel and from services to the Canal Zone may have compensated, to an extent, in terms of over-all growth in gross

foreign exchange earnings. Growth in commodity imports appears to have slackened but was the result, in part, of a slow-down in crude petroleum imports during a period coincident with a temporary interruption of refining operations for normal maintenance; and likely the result, as well, of increased production of import substitutes. Data on capital goods imports through the second quarter indicate the possibility of capital goods investment of a slightly greater magnitude than the high level attained in 1966. Finally, this high level of capital goods investment in 1966 was likely felt in a further strong expansion of industrial production in 1967.

Since 1968 is an election year, economic decisions may be more cautiously made and some investment decisions may be postponed until the political situation is clarified. In early 1968, however, business confidence remains high and, barring unforeseen circumstances, a continued high rate of economic growth (although again at a lower rate than that of 1966) can be expected.

(b) Investment

Investment expenditure in Panama has been increasing at a rate well above the average rate of increase in GNP. Gross investment expenditure in Panama as a percent of GNP has compared quite favorably with the Latin American average. (See Annex II Exhibit 13).

In 1966, investment activity in Panama was intense. Construction and capital goods investment shared nearly equally in generating an increase of over 40 percent in gross fixed investment. This sharp increase was almost entirely attributable to the private sector. While no doubt the result of several factors, including incentives in the form of import restrictions, the marked increases in private investment which have taken place since 1964 would not have been possible without the climate of stability which has prevailed since.

It would seem unlikely that the sharp rate of increase in private sector investment in 1966 could have been maintained in 1967. Rather, it is expected that 1967 data will show an increase, but at a somewhat reduced rate.

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Fixed investment in the public sector declined over the few years preceding 1966. In 1966 public sector fixed investment decreased slightly from the 1965 level. One reason for this performance lies in the fact that a not unsubstantial sum of public sector capital outlays take the form of financial investment channeled to the private sector through industrial and agricultural credit and mortgage operations of the public sector. These sums do not appear in the national income accounts totals, nor do they appear on a gross basis in public finance publications.

According to Planning Office estimates, a substantial increase (over 50 percent) in fixed investment outlays of the public sector should have taken place in 1967 over the 1966 level of 20 million. Planning figures for 1968, based on the project "pipeline", indicate another large increase in public sector fixed investment outlays to some \$40 million. However, with attention focusing on the political campaign and with a change in administration to follow, this planning level may be somewhat optimistic.

(c) Public Finance

The revenue performance of the Central Government, as a result of a major tax reform in 1964 and improved administration, has been excellent with income and profits taxes gaining in relative importance to other revenue. During the early 1960's Central Government revenue was increasing at a rate below that of GNP. But by 1966, this trend had been reversed with revenue increasing by 16 percent over the 1965 level and with income and profits taxes alone increasing by 34 percent. In 1966, income and profits taxes represented 30 percent of the Central Government's ordinary revenue, comparing quite favorably with the 15 percent average of the five other Central American countries. According to preliminary data, ordinary receipts for 1967 increased by over 12 percent to \$112.7 million. (See Annex II, Exhibit 14 ).

Expenditure, however, has generally remained abreast of increases in revenue. Thus, while small "ordinary" budget surpluses were registered in 1965 and 1966, a small deficit (less than \$1 million) was registered in 1967, according to preliminary data. Although this increase in ordinary expenditure has been to a degree, in direct or indirect support

of development (e.g. along with qualitative improvements, both the Planning Office and income tax staffs have been doubled since 1964), it has also been clear that fiscal restraint would have to be exercised. This apparently was accomplished in 1967 when ordinary expenditure was held below the amount budgeted.

Ordinary expenditure of roughly \$130 million has been budgeted for 1968 (revenue in 1967 was 112.7 million). Since it appears that the rate of increase in income and profits tax collections tapered off somewhat in 1967 (according to unofficial estimates) as did the increase in ordinary revenue as a whole, restraint in Central Government consumption expenditure will probably have to be exercised in 1968 to assure the commitment of budgeted amounts for capital outlays and to keep ordinary expenditure and revenue in reasonable balance. Since 1968 is an election year this may prove to be somewhat difficult.

#### Debt Repayment Capacity

At the end of 1966, the funded debt outstanding of the Central Government was \$125 million. Service payments against this debt amounted to \$11.8 million. Payments against the floating debt of the Central Government, another \$3.2 million, brought total debt service payments to some \$15 million, or 15 percent of ordinary revenue.

Of the total funded debt of the Central Government in 1966, some \$69 million represented external debt. Service payments against this debt amounted to \$5.5 million. In addition, public autonomous institutions owed some \$25 million (against \$40 million authorized) in directly contracted external debt, and made service payments of \$1.4 million. Thus, in 1966, public sector servicing of external debt amounted to \$6.9 million, less than 3 percent of gross foreign exchange earnings.

In 1967, the external debt of the public sector (Central Government and autonomous agencies) is estimated to have increased by a net of some \$15 to \$16 million and external debt service payments to have increased to a total of over \$8 million.

**(d) Balance of Payments**

A well-defined trend in Panama's balance of payments accounts, over the years, has been a relatively sizeable and growing trade deficit which has been largely off-set by a growing services surplus with the Canal Zone. The net result in 1966 was a current account and transfer deficit of \$26.4 million. (See Annex II, Exhibits 15, 16 and 17).

In 1966 commodity exports, led by bananas, increased by 12.4 percent over 1965's level. Incomplete data for 1967 indicate that commodity exports may have increased at a somewhat lower rate. The primary reason for this anticipated slackening in the growth of exports in 1967 stems from a decrease in exports of petroleum products resulting from a normal shut-down for maintenance of the refining facility. This, to a large extent, will have neutralized for an increase in exports of bananas of about 10 percent. With an expansion of refining capacity scheduled for completion in the summer of 1968, exports of refined petroleum will likely pick up during the second half (as will imports of crude petroleum). Banana exports should continue to register increases, although not on the order of recent years. No significant boost in the export total can be expected from Panama's secondary exports, with the possible exception of fishmeal and citrus products, the latter resulting from a recently established processing plant.

Of Panama's gross foreign exchange earnings in 1966, 60 percent originated from services, primary among which were travel receipts and earnings from services rendered to the Canal Zone. The services category, as a whole, can be expected to have generated increases in foreign exchange earnings in 1967 and, barring unforeseen circumstances, to do likewise in 1968. This conclusion is based on expected increases in receipts from tourism and from services to the Canal Zone.

The net result of this current account activity in 1967 was likely a small to moderate increase over Panama's 1966 current and transfer account deficit of \$26.4 million.

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The deficit in 1968 will probably show another increase, the size of which will be dependent in large part on the rate of growth in travel receipts and on the completion of the refinery expansion project.

Panama's current and transfer account deficit has been financed primarily by private direct investment and official loans from abroad as well as by net increases in the foreign liabilities of the banking system.

Having increased to roughly \$13.8 million in 1966, net disbursements (net of amortization payments) from foreign official loans accounted for a substantial portion of the financing of the current deficit. In 1967 net disbursements from foreign official loans were estimated to have increased to \$17.2 million with another increase projected for 1968.

Macro-Economic Summary

Panama's economic performance during the Alliance period has been excellent. Current prospects for further growth at high levels are good, but the rate of growth will probably not continue at the level achieved in 1966.

Since early 1964 when confidence was at a low ebb, the Government of Panama has undertaken a major tax reform, has established a "climate" conducive to strong private investment activity, and has carried out an impressive array of social and economic development projects.

As was pointed out in the October 1967 document prepared by the CIAP Secretariat, "the overall growth and fiscal record in Panama since 1960, although not without its problems, is one of gratifying progress justifying vigorous international support for future development efforts."

3. Relation of Project to U.S. Assistance Strategy

The project is consistent with the emphasis on programs to improve economic and social conditions in the large urban centers of Panama stemming from M.O. 1612.83.1 and the report of the Panama Review Team. It is one of a series of projects designed to contribute to the orderly and efficient growth of Panama City.

AID has financed a project (001) and is currently financing several others (005, 019) extending water lines to new areas of Panama City. The continued growth of the city, its economic potential and, more fundamentally, the health of its inhabitants, depend on an adequate supply of potable water.

This project has not been developed within the context of a comprehensive metropolitan development plan, since one does not as yet exist. However, the water supply facilities proposed will serve virtually any metropolitan development pattern which can be foreseen during the next 15 years.

#### 4. Anticipated Water Demand

##### (a) Population

A projection of present population trends indicates that the estimates presented in the Greeley and Hansen report are conservative. A study recently prepared by the University of California indicates that the population of the country may be between 2.7 million and 3.0 million by the year 1990. At present, the urban population represents about 40% of the population of the country. The University of California study projects this percentage to 62.3-66.3% by the year 1990, with a total urban population between 1.7 and 2 million.

At the present time, Panama City constitutes about 60% of the urban population of the country. It is anticipated that this proportion will still apply in 1990 if the canal is at or near its present location, in view of the major role which the canal plays in the country's economy. A prediction of 1.0 million to 1.2 million population for Panama City for the year 1990 seems realistic; therefore, the 829,000 projected by Greeley and Hansen seems conservative.

In a similar manner, a projected population of 2.1 to 2.5 million may be expected by 2020, rather than the 1.76 million projected by Greeley and Hansen.

##### (b) Per Capita Consumption

Per capita water consumption in Panama City has increased from 71.2 gallons per day in 1960 to 86.0 gallons per day in 1965.

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This increase is attributed to improvements in the distribution system and increased use of washing machines and other water-using appliances. At the present time, IDAAN is extending water mains to new areas of the city with AID financing. It is anticipated that this will bring water into many houses which have heretofore relied on public taps and thus result in additional increases in per capita consumption.

Greeley and Hansen predicted an increasing level of consumption up to 120 gallons per capita per day in 2020.

Considering increasing per capita income and increasing industrialization and in comparison with the estimate of 140 gallons per capita per day in United States cities in 1950, this figure seems conservative.

(c) Total Expected Demand

On the basis of projections of population and per capita water consumption, Greeley and Hansen predicts total water consumption as follows:

<u>Year</u>	<u>Consumption - MGD</u>
1970	38.0
1980	58.0
1990	86.0
2000	121.0
2010	164.0
2020	212.0

This table indicates that the proposed 56 MGD facility will be adequate by itself to supply demand until 1980, and with an average daily supply of 23 MGD from the Miraflores plant, as at present, will meet average demand until about 1988. At this point, or sooner if population and/or per capita consumption have been underestimated, a second stage facility must be built. (See Demand/Supply Chart, Annex II, Exhibit 18 )

(d) Distribution of Demand

While the population projections for the years 1990 and 2020 seem to be fairly reasonable, we have some reservations about the population distribution pattern projected by the consultants.

1. Population densities appear to be excessive. Gross densities assumed for residential areas are 60, 200, and 400 persons per acre in low, medium and high density areas, respectively. These are comparable to densities in New York City apartment complexes such as Parkchester and Stuyvesant Town, and do not take into consideration the problems or the potentials of a tropical climate, nor do they allow for adequate automobile parking space.
2. Insufficient area is allowed for recreational uses. The land use projection for 2020 assumes 488 acres for this purpose, whereas for the projected population 2800 acres of recreational uses should be provided.
3. There is as yet no comprehensive plan for the development of Panama City. It is expected that a comprehensive plan program will be initiated within the next six months and completed in two or three years, with AID financing.

In view of the density questions and the imminent development of a comprehensive urban plan for Panama City, it is recommended that only those distribution lines be built under the loan project which are necessary to connect the new supply to the existing system and to supply expansion needs for the next three or four years. These lines are identified in Section I.E.

## 5. Aspects of Water Supply

### (a) Existing Situation

Panama City now receives its water supply from the Panama Canal Company under a commitment which provides a maximum of at least 30 MGD. Up to 15 MGD of a total maximum capacity of 45 MGD from the Miraflores plant are considered to be necessary to meet the requirements of the Canal Zone on the Pacific side.

The City is very close to using its maximum allocation at the present time. Three days during the past month, thirty million gallons or more were pumped to Panama City from the Miraflores plant. While more than thirty million gallons a day may be provided if the

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Canal Zone does not utilize its full share, this cannot be guaranteed to be available. Assuming normal increases in demand, therefore, it is virtually certain that before a new system can be designed and built, the City will be short of water and some form of rationing or restricted supply will have to be imposed in the next year or so.

(b) Justification of Additional Supply

As stated above, the existing water supply will likely not be adequate even to serve the needs of Panama City while a new facility is being designed and built. The continued growth of the city depends on the availability of an adequate supply of pure water. As the national population continues to increase, a larger and larger proportion of the population must be supported by industrial and other non-agricultural activities. Because of the canal, industry and commerce will tend to concentrate in the vicinity of Panama City. The planning of the Panama-Colon metropolitan region must consider alternative urban patterns which will disperse the population to a number of smaller cities. Under any alternative, however, Panama City would have a population much larger than at present.

From a more positive perspective, large volume of pure water is one of Panama's most valuable resources, one which should be exploited in planning the future development of the country. It may be possible in this way to attract industries in which the quantity and quality of water are critical factors.

A new water supply for Panama City is thus not only a necessity to maintain the present growth pattern, but an opportunity to stimulate additional future growth and economic development.

(c) Justification of Size of Facility

A 56 million gallon per day water supply system will be adequate by itself to supply the anticipated demand until about 1979. With 23 million gallons per day from the Miraflores plant, the new facility will meet anticipated demand until 1988. In arriving at a determination on the size of facility to be provided, the lower unit cost of building a larger initial stage must be balanced against the higher fixed costs which must be carried for a period of years during which the entire capacity is not utilized. A 56 million gallon per day facility will be adequate for

the next 12 to 15 years and at a much lower capital cost, lower fixed debt to IDAAN, and with no higher operating costs. (See Annex II, Exhibit 4 ). This 56 MGD system thus provides an optimum balance between initial cost and annual charges and is supported by the Cost-Benefit Analysis shown in Annex II, Exhibit 8. ;

(d) Justification of Madden Lake as a Source

The consultant considered nine alternative possible sources of water supply for the City of Panama. Of these, the Paraiso location demonstrates savings in both construction and average annual costs. The Madden Lake location was second lowest in both construction and average annual costs. However, an intake system located at Paraiso is not considered to be a reasonable alternative to a system with its intake located at Madden Lake (see Annex II, Exhibit 5 ). Some of the reasons given in the Exhibit are:

1. During the height of the rainy season, the water at the present Paraiso intake, and to a certain extent even at the existing Gamboa intake, becomes quite turbid, and this increases loading on filters and reduces the effective capacity of the existing Miraflores treatment plant to meet the peak demands presently being imposed.
2. Labor costs for operation at either Paraiso or Gamboa could be higher than at Madden Lake since IDAAN operating personnel would be working within the Zone and could be subject to its higher salary scale.
3. It is anticipated that the Canal will be widened sometime within the next 25 years even if a sea level canal were not to be constructed through the present canal area. Such widening could necessitate the removal of an intake at Paraiso. Thus Paraiso as a site for a new water system is only a short-term choice for a long-term project since the system to be constructed will form the principal water supply source for the metropolitan Panama City area with its projected population of 829,000 by 1990, the period to be served by the proposed new facilities.

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4. If a sea level canal were to be constructed along the route of the present canal alignment (and this could well become a reality), this would also require the relocation of the intake system at Paraiso resulting in disruptions to the water supply service to Panama City.

Eliminating Paraiso from consideration as a possible water source, Madden Lake then becomes the least expensive alternative and is the location recommended.

## G. FINANCIAL ANALYSIS

### 1. Financial Plan

The total cost of the project is estimated at \$23,000,000 of which \$13,200,000 will be for U.S. procured goods and services and \$9,800,000 will be for procurement in Panama. Of the A.I.D. loan, \$150,000 will be earmarked for the two special studies, rate and management. These services will require 12 to 15 months to complete and such services will be completed before construction commences. A breakdown of the A.I.D. loan and IDAAN input is set forth below:

	<u>A. I. D.</u>		<u>IDAAN</u>
	<u>US\$</u>	<u>LC</u>	<u>LC</u>
Goods/Services	13,050,000	1,800,000	8,000,000
Special Studies	<u>150,000</u>	<u>          </u>	<u>          </u>
Total	13,200,000	1,800,000	8,000,000 = 23,000,000

The above schedule shows that only a small percentage, 12%, of the A.I.D. loan is to be used for locally procured items and as related to total local costs, the A.I.D. contribution is only 18.5%. IDAAN's input to the project amounts to 81.5% of the project's local costs and 35% of the total project's costs. Their contribution will be obtained from a combination of direct GOP budgetary subsidy, sale of GOP bonds, IDAAN operations and maybe some sale of IDAAN bonds. The IDAAN/GOP input will be made available during the 22-24 month construction period on a basis proportionate to disbursements under the AID loan in order to assure timely completion of the project.

A schedule of disbursement of the A.I.D. and IDAAN funds is set forth below:

<u>Year</u>	<u>AID</u>	<u>IDAAN</u>
1st	\$ 500,000	B/.
2nd	5,000,000	2,000,000
3rd	7,250,000	5,000,000
Final ½ year	<u>2,250,000</u>	<u>1,000,000</u>
TOTAL	\$15,000,000	B/. 8,000,000

2. Borrower's Financial Situation

IDAAN has experienced rapid growth over the past few years. This growth has accompanied the rapid expansion in the economy and large urban population increases. Audited financial figures for 1965, 1966 and November 30, 1967 show IDAAN's total assets as having grown 13.4% from 12/31/65 to 12/31/66, and by 13.5% during the latest 11-month period, 12/31/66 - 11/30/67. During this same period, long-term debt has increased 19% and 15% respectively. The primary source of this increase has been in external debt from A.I.D. and IDB. While IDAAN's equity position has also risen, debt has increased faster, which as noted in the table below, shows the debt to equity ratio increasing from 46.5% in 1965 to 50.5% by the end of November, 1967. This ratio is not unreasonable for a utility company.

A condensed statement of IDAAN's financial condition is below. A detailed statement is shown in Annex II, Exhibit 19.

	<u>(In Million US\$)</u>		
	<u>12/31/65</u>	<u>12/31/66</u>	<u>11/30/67</u>
Total Assets	20.9	23.7	26.9
Fixed Assets	18.4	21.3	24.8
Term Debt	9.0	10.7	12.3
IDAAN Equity	2.2	2.9	2.6
Capital Grants *	8.1	8.2	9.4
% Debt to Equity	46.5%	49%	50.5%

\* Represents primarily assets transferred to IDAAN when it was established in 1962. No debt obligations are attached thereto.

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IDAAN has two sources of income: (1) income from water sales and (2) income from special assessments. (See Annex II, Exhibit 20 for 12/31/67 Income Statement). Item #1 includes sales to the agencies of the National Government and to all other consumers throughout the country, both urban and rural. Present water rates are shown in the following chart:

<u>Panama City</u> (Volume in gallons)	<u>Cost</u> (per thousand gallons)
The first 34,000	0.45¢
The next 306,000	0.40¢
Over 340,000	0.35¢
Without meters - per 4000 gallons	1.80
 <u>Colon</u>	
The first 50,000	0.50¢
The next 450,000	0.45¢
Over 500,000	0.40¢
Without meters - per 4000 gallons	2.00
 <u>Other Areas</u>	
Per 5000 gallons	2.00

The present rate structure is sufficiently adequate to permit IDAAN to meet its normal operating and maintenance costs and to cover the existing debt obligations. The income from the present rate begins to become somewhat thin, however, by the end of 1971 when the debt pressure imposed by this proposed loan begins to be realized. The pressure is delayed until then since interest on the A.I.D. loan is to be capitalized during the 5-year grace period of the loan. To prepare for the increased financial obligation, there is included in this loan provision for \$150,000 to carry out water rate and management studies. These studies will be completed and implemented prior to start of construction. The second source of income item #2 is from special assessments. Such assessments are charged to all users for new installations and improvements to the water and sewerage systems. These assessments are included in IDAAN's regular water bill to the users.

It should be noted that IDAAN collects on over 95% of all accounts billed. This includes 95% collections for the cities of Panama and Colon and almost 99% from the rest of the country. IDAAN is trying to further improve its operations as is evidenced by the continued installation of water meters primarily in urban areas of over 2000 people (83.5% of all users are now metered-See Annex II, Exhibit 21 ) and the recent change in billings from every three months to every two months which will substantially improve the cash flow position of IDAAN. The overall billing and collection operation will be reviewed during the loan-funded management study. Unfortunately, the major collection problem which has faced IDAAN has been the delinquent account of IVU (autonomous GOP housing agency). IVU's overdue account now totals approximately \$200,000 and the USAID has several times advised the highest officials in the GOP of the concern which this gives to the U.S.G. The GOP has responded by including additional funds in the new GOP budget for payment to IDAAN, over and above projected water use for 1968. Still, the IVU debt remains a problem which can only be solved by internal GOP efforts.

An abbreviated cash flow statement is shown below. It has been reviewed by IDAAN's auditors, Ernst & Ernst. It shows that while IDAAN can cover all projected costs and debt service, projected revenues (income from water sales are based on present rate structure) provide only marginal protection and is believed to be somewhat inadequate to meet unforeseen expenditures and to provide for some reserve to be used for participation in future capital expenditures. This matter will be addressed by the loan-funded water rate and management studies. (See Annex II, Exhibit 22 for project financial statements.)

IDAAN's present cash flow situation, while adequately covering all cash needs, has been somewhat uneven thus giving rise to some delays in meeting bills when presented by its creditors, including AID and the Panama Canal Company. While its cash availabilities have never been particularly abundant, it has been sufficient, but has been received only four times a year, as noted above. In other words, IDAAN's practice, which is now being changed, has been to bill users once every three months. They thus had peaks

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and valleys in money available while bills came in on a regular basis. Such a practice obviously causes difficulties, particularly when operating on a thin cash margin. To help correct this problem, IDAAN has just switched to a two-month billing cycle and they expect that this will help even out their flow situation.

A cash flow projection, which indicates that IDAAN will generate from earnings and special assessments sufficient cash to service anticipated debt, follows:

( In Thousands US\$ )

<u>Year</u>	<u>Net Income + Depreciation + Special Assessment</u>	<u>Debt Service (P &amp; I)</u>	<u>Times Earned</u>
1968	\$ 2,276	\$ 1,168	1.95
1969	2,660	1,595	1.65
1970	2,684	1,934	1.40
1971	2,717	2,196	1.25
1972	3,127	2,429	1.30
1973	3,419	3,039	1.10
1974	3,736	2,678	1.40
1975	4,026	2,678	1.50
1976	4,323	2,657	1.60
1977	4,661	2,663	1.75
1978	5,029	2,556	1.95
1979	5,424	2,402	2.25
1980	5,849	2,390	2.45

3. Loan Terms and Repayment

Loan terms being recommended are: 3½% interest, 5-year grace period, 25-year repayment period. This is consistent with the past two A.I.D. loans to IDAAN and is considered not unduly harsh when viewed against the cash flow projections (showing IDAAN meeting debt obligations at these terms) and when recognizing that this large single loan falls on IDAAN because it is starting de novo, with its own treatment plant for Panama City. Too heavy interest charges under one such large loan would clearly overburden IDAAN's capacity.

The proposed terms would not, based on projections, exceed IDAAN's repayment capacity and there is, therefore, every reason to believe that there are reasonable prospects of repayment. The benefits which are expected to flow from the rate and management studies are believed to provide substantial, long-term strengthening of IDAAN's fiscal and managerial capability, thus giving further assurance of loan repayment.

SECTION II - IMPACT ON U.S. ECONOMY

This project will have a favorable impact on the U.S. economy. The private architectural-engineering firm will be either U.S. or a joint venture of U.S.-Panamanian. The construction firm will be also United States or a joint venture. Additionally, as the cost breakdown shows (Annex II, Exhibit 4) a very substantial portion of the materials and equipment for this project will be procured directly from the United States. Beyond actual project construction, maintenance equipment and spare parts will be U.S. bought.

SECTION III - COVENANTS AND CONDITIONS

In addition to the usual conditions precedent and covenants found in the A.I.D. loan agreements, the following special provisions are recommended for inclusion in this project's loan documents:

Conditions Precedent

1. Prior to disbursement of funds for other than engineering services, the Borrower shall submit:
  - (a) evidence of arrangements for a study of IDAAN's water rates with a qualified firm acceptable to A.I.D.
  - (b) evidence of arrangements for a study of IDAAN's organization, administration and operations with a qualified firm acceptable to A.I.D.
2. Prior to the disbursement of loan funds for construction, the Borrower shall have:
  - (a) taken action to the extent of its legal capacity, to comply with the recommendations contained in the completed study of IDAAN's water rates, and will give written evidence that future actions recommended by the study will be taken on a prompt and timely basis;
  - (b) taken action in accordance with recommendations contained in the completed study of IDAAN's organization, administration and operations, and will give written evidence that future actions recommended by the study will be taken on a prompt and timely basis;
  - (c) submitted evidence of an agreement, expressed in writing, with the Panama Canal Company on the volume and cost of water to be taken from the Miraflores system up to the 1988-1990 period;

- (d) developed, ready for implementation an operating and maintenance program for the system serving The City of Panama. This shall include the provision for necessary skilled staff and training of additional staff as may be required;
- (e) submitted evidence that the full amount of IDAAN's contribution to the Project will be made available on a timely basis in order to assure completion of the Project within the scheduled period;
- (f) evidence that it has obtained-or will obtain, in accordance with time schedule satisfactory to A.I.D., any real property rights, including easements and rights-of-way, required for the Project;
- (g) evidence of an agreement with the Panama Canal Company for the right-of-way on and use of Canal Zone property and for use of Madden Lake water to the extent necessary for this Project.

COVENANTS

1. The Borrower will carry out its operating, maintenance and staff training program, and provide qualified and experienced staff as may be necessary and appropriate.
2. The Borrower agrees to the extent of its legal capacity, to accept, install and enforce the recommendations made under the water rate study financed with the loan funds.
3. The Borrower agrees to accept, install and enforce the recommendations made under the management study financed with the loan funds.

4. The Borrower will continue its program of installation of water meters with the view of completing such installation for all connections before commencement of operation of the new water supply plant.
5. Borrower shall pay all debts of the Borrower due and owing to the Panama Canal Company within ninety (90) days from the dates of invoices submitted to the Borrower for such debts.

#### SECTION IV - IMPLEMENTATION PLAN

This implementation schedule is based on a loan authorization date of April 30, 1968 and a Loan Agreement signing date of June 30, 1968. It is estimated that commencing with initial surveys and ending with a finished project, approximately 42 months will have elapsed. Construction time is estimated to take almost 24 months and some of the design work up to 17 months. The design and construction phases may, in part, overlap.

After the Loan Agreement signing, it is expected that initial conditions precedent to disbursement will be met during the fourth quarter of 1968. These CP's will include the signing of an architectural-engineering contract. It is possible that the first letter of commitment for A/E services will be opened late in CY 1968.

Presently engineering estimates indicate that the bid package will be ready for advertising late in the third quarter of 1969. In addition, the rate and management studies will be complete by the early part of the second quarter of 1969, thus clearing the way for disbursements for construction to begin by late 1969.

Given a construction period of 22-24 months, it is estimated that project completion will come at the end of 1971 or early 1972.

CHECK LIST OF STATUTORY CRITERIA  
PANAMA CITY WATER SUPPLY PROJECT  
(Alliance for Progress)

In the space provided under each item, summarize for each item the information or conclusion requested or make reference to the section(s) of the Capital Assistance Paper, or other clearly identified and available document, in which the matter is clearly discussed.

The following abbreviations are used:

FAA - Foreign Assistance Act of 1961, as amended by the Foreign Assistance Act of 1967.

App.- Foreign Assistance and Related Agencies Appropriations Act, 1968.

NA - Not Applicable.

Country Performance

Progress Towards Country Goals

1. FAA Sec. 208; Sec. 251(b)(1), Sec. 251(b)(5), Sec. 251(b)(6).  
Extent to which country is:
  - (a) making appropriate efforts to increase food production and improve means for food storage and distribution;
  - (b) creating a favorable climate for foreign and domestic private enterprise and investment;
  - (c) increasing the public's role in the developmental process;
  - (d) allocating expenditures to development rather than to unnecessary military purposes or intervention in other free countries' affairs;
  - (e) willing to contribute funds to the project or program;

(f) making economic, social and political reforms such as tax collection improvements and changes in land tenure arrangement, and making progress toward respect for the rule of law, freedom of expression and of the press, and recognizing the importance of individual freedom, initiative, and private enterprise;

(g) adhering to the principles of the Act of Bogota and Charter of Punta del Este, and responding to the vital economic, political and social concerns of its people, and demonstrating a clear determination to take effective self-help measures.

- (a) The growth in agricultural production in Panama is among the highest in Latin America. Improvement in food storage and distribution has been satisfactory and efforts to improve this is continually being made.
- (b) The climate for foreign and domestic private enterprise and investment has been most satisfactory as evidenced by the very high rate of increase in this area over the past several years.
- (c) The public's role in the developmental process is being encouraged through many of the AID and GOP programs.
- (d) Panama's efforts have been directed to internal economic development, rather than for military purposes or external intervention.
- (e) The GOP, in recognition of this project's importance, is contributing funds for its construction.
- (f) Many improvements have been made in Panama during recent years. Best evidence is seen from country's growth in all sectors of the economy.
- (g) Panama is adhering to the best principles of the Act and Charter.

2. FAA Sec. 251(b). Information and conclusion on country's efforts to repatriate capital invested in other countries by its own citizens.

Repatriation of capital invested abroad is not a problem in Panama.

Relations with United States and Other Nations

3. FAA Sec. 620(c). If assistance to a government, existence of indebtedness to a U.S. citizen for goods or services furnished or ordered where such citizen has exhausted available legal remedies, debt is not denied or contested by such government or indebtedness arises under an unconditional government guaranty.

Panama is not known to be so indebted to a U.S. citizen.

4. FAA Sec. 620(d). If assistance for any productive enterprise which will compete in the United States with U.S. enterprise, existence of agreement by the recipient country to prevent export to the United States of more than 20% of the enterprise's annual production during the life of the loan.

Not Applicable.

5. FAA Sec. 620(e)(1). If assistance to a government, extent to which it (including government agencies or subdivisions) has, taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations.

Panama has not taken such actions.

6. FAA Sec. 620(i). Information whether the country permits, or fails to take adequate measures to prevent, the damage or destruction by mob action of U.S. property.

Adequate measures by Panama have been and are being taken.

7. FAA Sec. 620(l). Consideration which has been given to denying assistance to a government which after December 31, 1966, has failed to institute the investment guaranty program for the specific risks of inconvertibility and expropriation or confiscation.

Panama has signed and instituted such an agreement.

8. FAA Sec. 620(o). If country has seized, or imposed any penalty or sanction against, any U.S. fishing vessel on account of its fishing activities in international waters, which has been given to denying assistance.

Panama has not taken any such action.

9. FAA Sec. 620(q). Existence of default under any FAA loan to the country.

At the time this paper was prepared, there was no default under any FAA loan to Panama.

10. FAA Sec. 620(t). Prohibition on aid if country has severed diplomatic relations with United States, unless agreements have been negotiated after resumption of relations.

- Not Applicable.

11. FAA Sec. 620(u). Status of the country on delinquent U.N. obligations.

To the best of our knowledge, Panama is not delinquent on any U.N. obligations.

12. FAA Sec. 209. Information about multilateral assistance being furnished to the country.

Other international financial institutions are presently providing assistance to Panama. However, none wished to participate in the financing of this project (See Section I.D.)

13. FAA Sec. 620(a); App. Sec. 107(a) and (b). Compliance with prohibitions against assistance to Cuba and any country (a) which furnishes assistance to Cuba or failed to take appropriate steps by February 14, 1964, to prevent ships or aircraft under its registry from carrying equipment, materials, or supplies from or to Cuba; or (b) which sells, furnishes, or permits any ships under its registry from carrying items of primary strategic significance, or items of economic assistance to Cuba.

No assistance will be furnished under this loan to the present Government of Cuba, nor does Panama furnish assistance to such government. Panama has taken appropriate steps to prevent ships or aircraft under its registry from engaging in any Cuba trade.

14. FAA Sec. 620(b). If assistance to a government, existence of determination it is not controlled by the international Communist movement.

Panama is not controlled by the International Communist movement; this has been determined by the Secretary of State.

15. FAA Sec. 620(i). Information on representation of the country at any international conference when that representation includes the planning of activities involving insurrection or subversion against the United States or countries receiving U.S. assistance.

No information exists regarding the representation of Panama at any international conference which included the planning of activities involving insurrection or subversion against the U.S. or countries receiving U.S. assistance.

16. FAA Sec. 620(n); App. 107(b) and 116. Compliance with prohibition against assistance to countries which traffic or permit trafficking with North Viet-Nam.

Panama does not traffic nor permit trafficking with North Viet-Nam.

#### Military Expenditures

17. FAA Sec. 620(i). Existence of determination that the country is engaging in or preparing for aggressive military efforts.

No determination has been made that Panama is engaging in or preparing for aggressive military efforts.

18. FAA Sec. 620(s). Information and conclusion whether country is devoting unnecessary percentage of budget for military purposes and using foreign exchange for military equipment.

Panama is not devoting an unnecessary percentage of its budget for military purposes or using foreign exchange for military equipment.

19. App. Sec. 119. Information on reduction in assistance by amounts spent by country for the purchase of sophisticated military equipment.

Panama has not purchased sophisticated military equipment.

Conditions of the Loan

General Soundness

20. FAA Sec. 201(d). Information and conclusion on legality (under laws of country and United States) and reasonableness of lending and relending terms of the loan.

AID development loans at terms similar to this loan have been made in Panama. The terms are both legal and reasonable. (See Section I.G.3.)

21. FAA Sec. 251(b)(2); Sec. 251(e). Information and conclusion on activity's economic and technical soundness, including information on availability of an application together with assurance to indicate that funds will be used in an economically and technically sound manner.

For information on the project's economic and technical soundness, see Sections I.E. and I.F. An application has been received from IDAAN which incorporates to it the feasibility study (plus amendments thereto) by the engineering firm of Greeley and Hansen, indicating that funds will be used in an economically and technically sound manner.

22. FAA Sec. 251(b). Information and conclusion on capacity of the country to repay the loan, including reasonableness of repayment prospects.

There are reasonable prospects of repayment of this loan. (See Section I.G.3.)

23. FAA Sec. 611(a)(1). Information and conclusion on availability of engineering, financial, and other plans necessary to carry out the assistance and of a reasonably firm estimate of the cost to the United States of the assistance.

There are sufficient plans necessary to carry out this project and a reasonably firm estimate of cost. (See Sections I.E. and I.G.)

24. FAA Sec. 611(a)(2). Necessary legislative action required within recipient country and basis for reasonable anticipation such action will be completed in time to permit orderly accomplishment of purposes of loan.

Only legislative action now anticipated is that relating to GOP contribution to the project. We have assurances, both in the loan application and orally from the Executive Director of IDAAN that such action is assured during the next assembly commencing in October 1968.

25. FAA Sec. 611(e). Compliance with requirement that Mission Director certify, with respect to projects estimated to cost over \$1 million, as to the country's capability effectively to maintain and utilize the project.

Certification by Mission Director is found as Annex IV of this loan paper.

26. FAA Sec. 251(b). Information and conclusion on availability of financing from other free-world sources, including private sources within the United States.

Financing from other free-world sources, including private U.S. sources, is not available (See Section I.D.)

Loan's Contribution Towards Achievement of Country and Regional Goals

27. FAA Sec. 207; Sec. 251(a). Extent to which assistance reflects appropriate emphasis on:
- (a) encouraging development of democratic, economic, political and social institutions;
  - (b) self-help in meeting the country's food needs;
  - (c) improving availability in the country of trained manpower;
  - (d) programs designed to meet the country's health needs;
  - (e) other important areas of economic, political and social development, including industry; free labor unions, cooperatives and voluntary agencies; transportation and communication; planning and public administration; urban development; and modernization of existing laws.
- (a) AID assistance to Panama is encouraging development of democratic, economic, political and social institutions.
  - (b) The growth in Panama's agricultural sector is among the highest in Latin America.
  - (c) Effort is continually being made by the GOP and AID to improve local trained manpower.
  - (d) AID and the GOP have many programs designed to meet the country's health needs.
  - (e) All of AID's assistance to Panama is designed to meet the needs of the sectors referred to in this section.

28. FAA Sec. 251(b)(3). Information and conclusion on activity's relationship to and consistency with other development activities, and its contribution to realizable long-range objectives.

This project provides an essential element in the development program for urban Panama City and is clearly an indispensable component to the long-range objectives of Panama.

29. FAA Sec. 251(b)(7). Information and conclusion on whether or not the activity to be financed will contribute to the achievement of self-sustaining growth.

This project is an essential ingredient for the achievement of self-sustaining growth of Panama.

30. FAA Sec. 281(a). Extent to which the loan will contribute to the objective of assuring maximum participation in the task of economic development on the part of the people of the developing countries, through the encouragement of democratic private and local governmental institutions.

Although this project does not lend itself to carrying out the objectives of this Section of the FAA, many other USAID/Panama loan programs are effective in this area.

31. FAA Sec. 281(b). Extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and is supportive of civic education and training in governmental skills.

The answer given to item #30 above is equally applicable to this item.

32. FAA Sec. 601(a). Information and conclusions whether loan will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture, and commerce; and (f) strengthen free labor unions.

This project will foster private initiative and competition through the use of competitive bidding for construction and will improve the technical efficiency of the staff of IDAAN by training in the operation of a large water treatment plant.

33. FAA Sec. 619. Compliance with requirement that assistance to newly independent countries be furnished through multilateral organizations or plans to maximum extent appropriate.

Not applicable.

34. FAA Sec. 251(h). Information and conclusion on whether the activity is consistent with the findings and recommendations of the Inter-American Committee for the Alliance for Progress in its review of national development activities.

This activity is consistent with the findings and recommendations of CIAP.

35. FAA Sec. 251(g). Information and conclusion on use of loan to assist in promoting the cooperative movement in Latin America.

Not applicable.

36. FAA Sec. 209, Sec. 251(b)(8). Information and conclusion whether assistance will encourage regional development programs, and contribute to the economic and political integration of Latin America.

This project is not of a regional development nature.

Loan's Effect on United States and A.I.D. Program

37. FAA Sec. 251(b)(4), Sec. 102. Information and conclusion on possible effects on U.S. economy, with special reference to areas of substantial labor surplus and extent to which U.S. commodities and assistance are furnished in a manner consistent with improving the U.S. balance of payments position.

Almost all of the AID loan funds for this project will be used for U.S. procurement. Construction will be by private contractor under competitive bid.

38. FAA Sec. 601(b). Information and conclusion on how the loan will encourage U.S. private trade and investment abroad and how it will encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).

Given the large size of this project, it is anticipated that either a U.S. architectural/engineering firm and construction company, acting solely or in joint venture with Panamanian firms, will implement the project.

39. FAA Sec. 601(a). Conclusion and supporting information on compliance with the Congressional policy that engineering and professional services of U.S. firms and their affiliates are to be used in connection with capital projects to the maximum extent consistent with the national interest.

A. U.S. engineering firm will be used in connection with this project.

40. FAA Sec. 602. Information and conclusions whether loan will permit U.S. small business to participate equitably in the furnishing of goods and services financed by it.  
Almost all of the loan funds will be used for U.S. procurement. U.S. small business will be permitted to participate equitably in the project.
41. FAA Sec. 620(h). Compliance with regulations and procedures adopted to insure against use of assistance in a manner which, contrary to the best interests of the United States, promotes or assists the foreign aid projects or activities of the Communist-bloc countries.

This project will not promote or assist foreign aid projects or activities of the Communist-bloc countries.

42. FAA Sec. 621. Information and conclusion on how the loan in providing technical assistance will utilize to the fullest extent practicable goods and professional and other services from private enterprise on a contract basis. If the facilities of other Federal Agencies will be utilized, information and conclusion on whether they are particularly suitable, are not competitive with private enterprise, and can be made available without undue interference with domestic programs.

Architectural/engineering and other professional services from private firms will be provided on a contract basis.

43. FAA Sec. 252(a). Total amount of money under loan which is going directly to private enterprise, is going to intermediate credit institutions or other borrowers for use by private enterprise, is being used to finance imports from private sources, or is otherwise being used to finance procurement from private sources.

All of the AID loan funds will be used to procure goods and services from private sources. Almost all of the AID loan monies will finance imports from private sources.

Loan's Compliance with Specific Requirements

44. FAA Sec. 608(a). Information on measures to be taken to utilize U.S. Government excess personal property in lieu of the procurement of new items.

Procurement of commodities will be by the private contractor. The availability of excess property will be made known to the procuring parties.

45. FAA Sec. 604(a); App. Sec. 108. Compliance with restriction of commodity procurement to United States except as otherwise determined by the President and subject to statutory reporting requirements.

Procurement under this loan will be limited to the U.S. and Panama.

46. FAA Sec. 604(b). Compliance with bulk commodity procurement restriction to prices no higher than the market price prevailing in the United States at time of purchase.

Procurement under the loan will be by competitive bid.

47. FAA Sec. 604(d). Compliance with requirement that marine insurance be purchased on commodities if the host country discriminates, and that such insurance be placed in the United States.

Marine insurance will be procured in the U.S., where applicable.

48. FAA Sec. 604(e). Compliance with requirement that funds not be used for procurement of any agricultural commodity or product thereof outside the United States when the domestic price of such commodity is less than parity.

Funds will not be used for procurement of any agricultural commodity or product.

49. FAA Sec. 611(b); App. Sec. 101. If water or water-related land resource construction project or program, information and conclusion on benefit-cost computation.

A benefit-cost computation prepared by the firm of Greeley and Hansen shows this project to be favorable when compared to other reasonable alternatives. (See Section I.E.)

50. FAA Sec. 611(c). Compliance with requirement that contracts for construction be let on competitive basis to maximum extent practicable.

Contracts for construction will be let on competitive basis.

51. FAA Sec. 620(f); App. Sec. 109. Compliance with prohibitions against assistance to any Communist country.

This loan will not assist any Communist Country.

52. FAA Sec. 620(g). Compliance with prohibition against use of assistance to compensate owners for expropriated or nationalized property.

This loan will not be used to compensate owners for expropriated or nationalized property.

53. FAA Sec. 612(b) and 636(h). Appropriate steps that have been taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services and foreign currencies owned by the United States are utilized to meet the cost of contractual and other services.

Appropriate steps have been so taken. The U.S. owns no local currencies that could be used for this project.

54. App. Sec. 102. Compliance with requirement that payments in excess of \$25,000 for architectural and engineering services on any one project be reported to Congress.

Any such payments will be reported.

55. App. Sec. 104. Compliance with bar against funds to pay pensions, etc., for military personnel.

No loan funds will be used to pay pensions, etc., for military personnel.

56. App. Sec. 106. If country attempts to create distinctions because of their race or religion among Americans in granting personal or commercial access or other rights otherwise available to U.S. citizens generally, application which will be made in negotiations of contrary principles as expressed by Congress.

No distinctions on the basis of race or religion will be attempted.

57. App. Sec. 111. Compliance with requirements for security clearance of personnel.

All such personnel will be cleared.

58. App. Sec. 112. Compliance with requirement for approval of contractors and contract terms for capital projects.

Will be complied with.

59. App. Sec. 114. Compliance with bar against use of funds to pay U.N. assessments, etc.

Funds will not be used to pay U.N. assessments, etc.

60. App. Sec. 115. Compliance with regulations on employment of United States and local personnel for funds obligated after April 30, 1964 (Regulation 7).

Regulation 7 will be complied with.

61. FAA Sec. 636(i). Prohibition on financing non-U.S. manufactured motor vehicles.

Loan funds will not be used to finance non-U.S. manufactured motor vehicles.

62. App. Sec. 401. Compliance with bar against use of funds for publicity or propaganda purposes within United States not heretofore authorized by Congress.

Loan funds will not be used for publicity or for propaganda purposes within the U.S.

63. FAA Sec. 620(k). If construction of productive enterprise where aggregate value of assistance to be furnished by United States will exceed \$100 million, identification of statutory authority.

Not applicable.

April 30, 1968

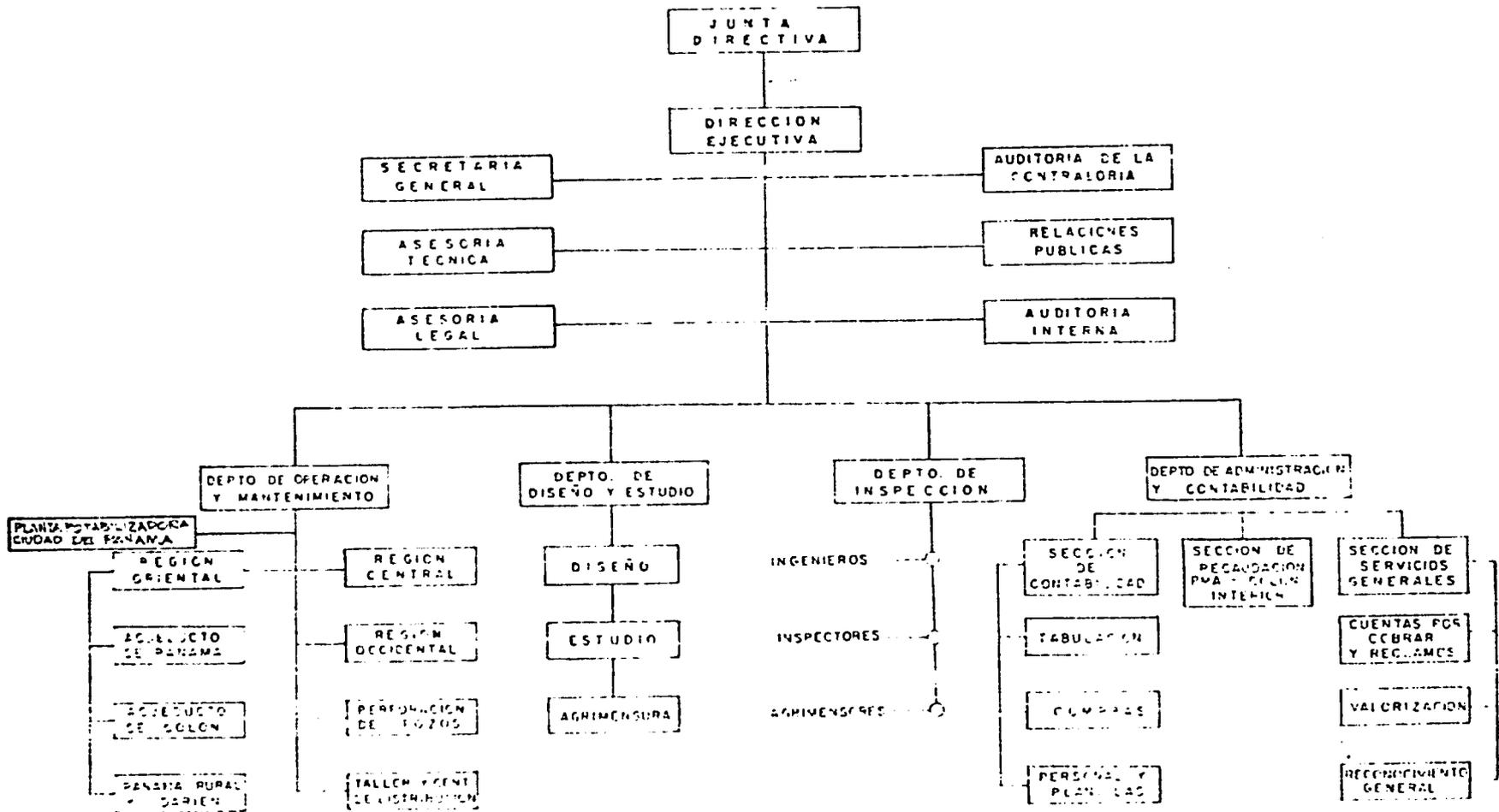
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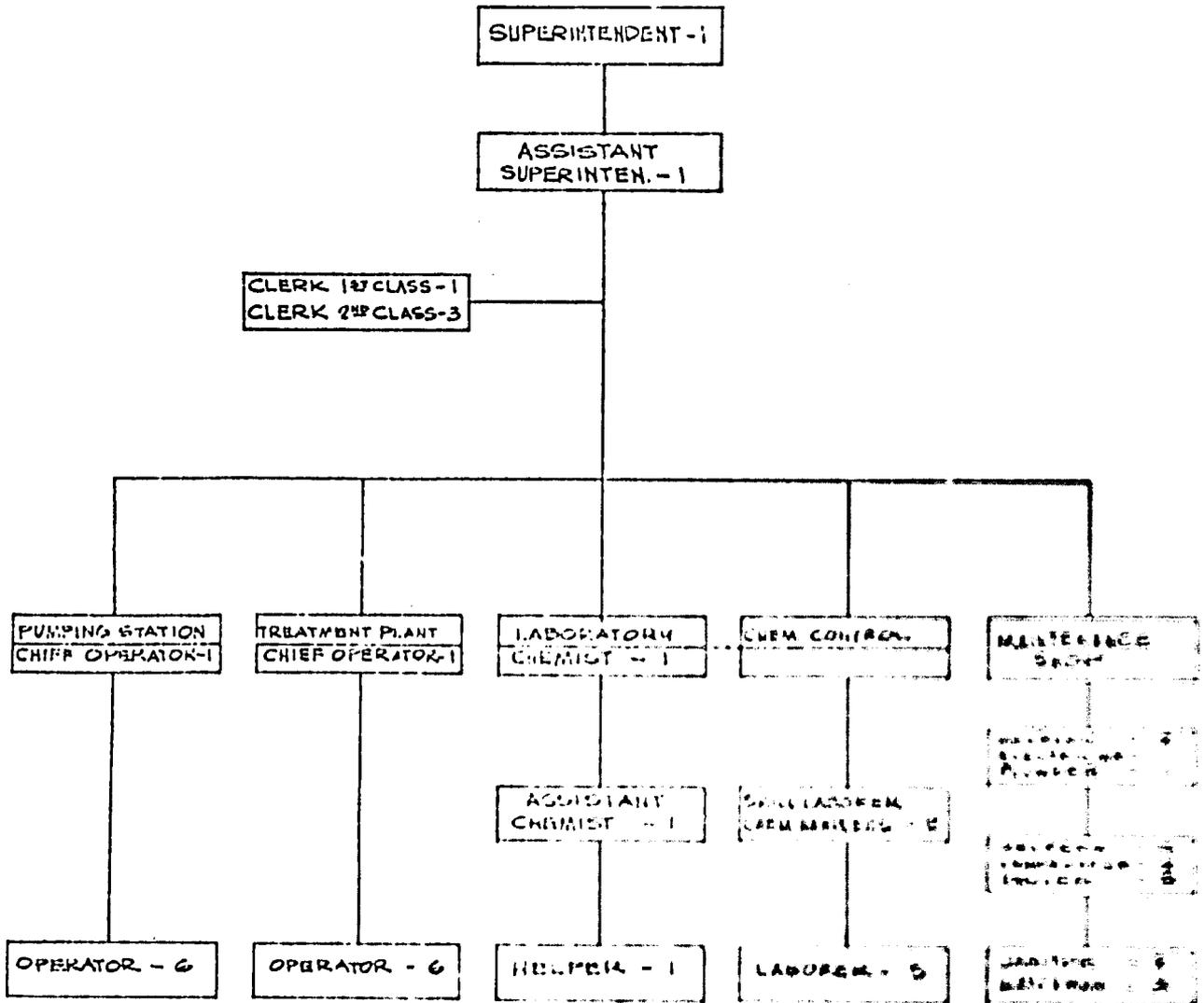
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ORGANOGRAMA GENERAL  
(Según el Reglamento)

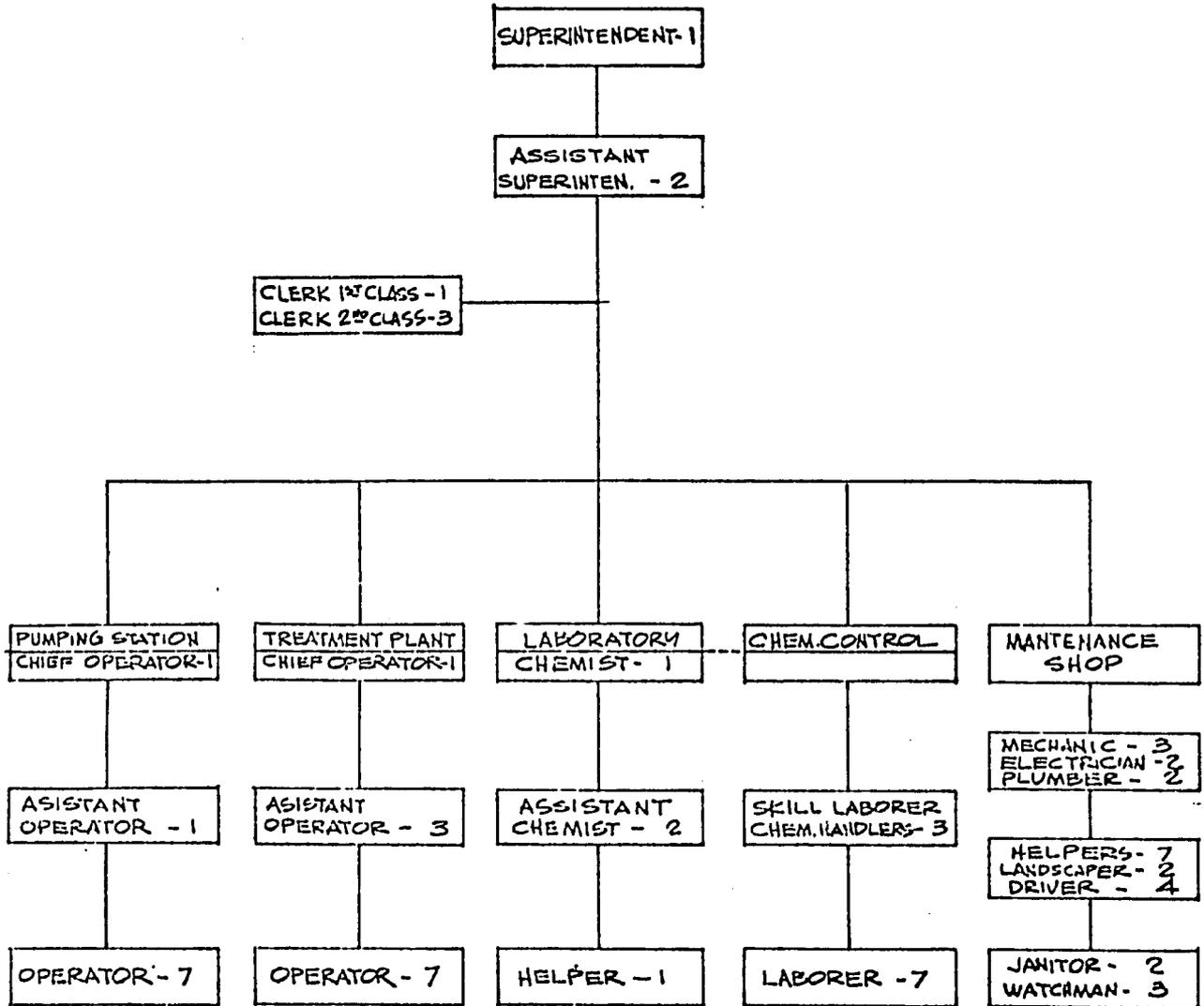


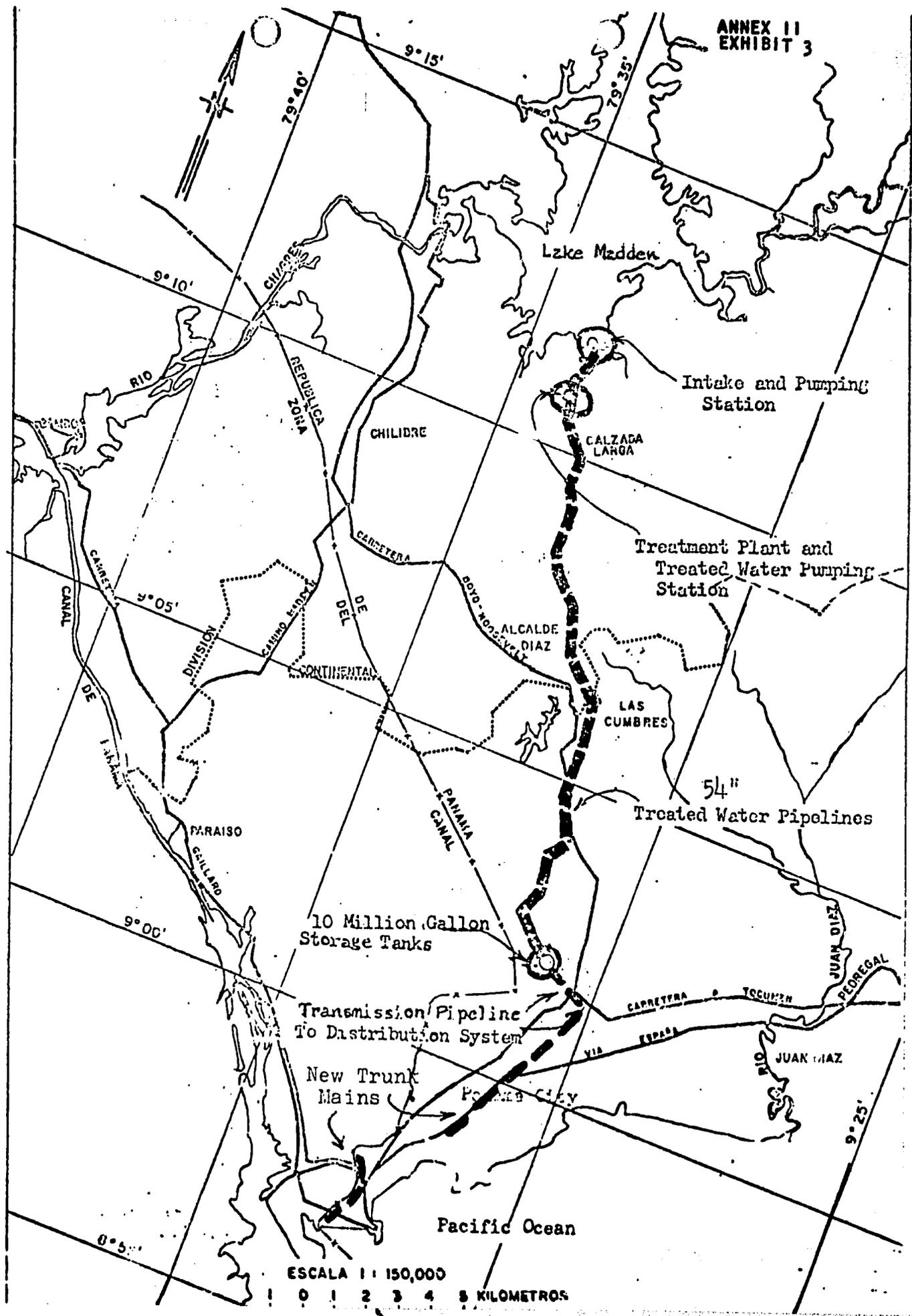
UNCLASSIFIED  
ANNEX II  
EXHIBIT I

PANAMA CITY WATER SUPPLY  
WATER TREATMENT PLANT  
ORGANIZATIONAL CHART  
PERIOD 1972-1980



PANAMA CITY WATER SUPPLY  
WATER TREATMENT PLANT  
ORGANIZATIONAL CHART  
PERIOD 1981-1987





ESCALA 1:150,000  
0 1 2 3 4 5 KILOMETROS

PANAMA REPUBLIC OF PANAMA  
WATER SUPPLY STUDY  
ESTIMATED COST FIRST STAGE CONSTRUCTION  
56 MGD NOMINAL CAPACITY

I T E M	Estimated Cost Madden Lake Project		T O T A L S	
	Dollars	Balboas	Dollars	Dollars
<u>Construction</u>				
Intake and Intake Tunnel	415,000	830,000	1,245,000	
Water Transmission Mains	4,720,000	2,030,000	6,750,000	
Raw Water Pumping Station	919,000	394,000	1,313,000	
Water Treatment Plant and Treated Water Pumping Station	2,520,000	1,630,000	4,150,000	
Stand by Power Generation Equipment	175,000	14,000	189,000	
Water Storage Reservoirs	150,000	515,000	665,000	
Water Transmission Main to Distribution System	424,000	284,000	708,000	
Electrical Transmission Line and substation	141,000	95,000	236,000	
Water Trunk Mains within Distribution System	924,000	616,000	1,540,000	
Spares, Maintenance facilities, and startup supplies (1%)	103,000	65,000	168,000	
Sub-Total Construction				16,964,000
<u>Other Costs</u>				
Management	115,000	35,000	150,000	
Engineering (12%)	1,221,000	815,000	2,036,000	
Legal Administration and Financing	122,000	60,000	182,000	
Land		145,000	145,000	
Participant Training	13,000		13,000	
Sub-Total Other Costs				2,526,000
Project Contingencies (10%)	1,196,000	753,000	1,949,000	
Total Project Costs	13,158,000	8,281,000		21,439,000
Interest During Construction	say 13.2 million	8.3 million 1.5 million		21.5 millic 23.0 millic
Notes:	One Balboa = one dollar			



UNITED STATES OF AMERICA  
AGENCY FOR INTERNATIONAL DEVELOPMENT  
U. S. AID MISSION TO PANAMA

UNCLASSIFIED  
ANNEX II  
EXHIBIT 5  
Page 1 of 6

P. O. Box "J"  
BALBOA, CANAL ZONE

MEMORANDUM OF CONVERSATION

DATE: October 25, 1967

PLACE: Panamá Canal Company, Administration Building

PARTICIPANTS: Mr. Phillip Glaessner, Deputy Assistant Administrator for  
Capital Development, Latin America  
Bureau - AID/W

Mr. Karl C. Kohler, Jr., Chief Engineer, Latin America Bureau  
AID/W

Mr. Norman Cohen, Acting Chief, Capital Development Division  
USAID

Mr. Charles Stevens, Chief, Engineering Division - USAID

Mr. Ronald Peake - Housing & Urban Development Officer - USAID

Mr. Jared Wood - Assistant Development Loan Officer - USAID

Mr. Carl J. Browne, Assistant Director, Engineering and  
Construction - Panama Canal Company

The purpose of our visit to Mr. Browne was to obtain Panama Canal Company's views regarding the proposed site location for the new Panama City Water Supply Project. We discussed in particular the pros and cons of locating the new water system at Paraiso, Paraiso/Gamboa and Madden Lake.

Mr. Stevens opened the meeting by recalling the conversation held with Col. Betts on August 24 and outlined our understanding of the results of that meeting (copy of memorandum to the files regarding that conversation is attached). We explained to Mr. Browne that we had included several points discussed in the August 24 meeting as justification for the Madden Lake site in the IRR sent to Washington in early September. After outlining the various reasons for not considering Paraiso, as discussed in the August 24 meeting, Mr. Browne stated that our understanding was correct.

Mr. Browne further commented that a water intake system located only at Paraiso would provide no assurance of a guaranteed supply of water and thus, without an alternate intake located at Gamboa, Paraiso could not be considered a reasonable alternative to a project located at Madden Lake. Mr. Stevens then noted in agreement that, in selecting a new water system, prime consideration must be given to the safety and security of the water supply.

Memorandum of Conversation

2

Place: Panama Canal Company, Administration Bldg.

Mr. Browne made several further comments which would further support justification for Madden Lake. They were:

1. During the height of the rainy season, the water at the present Paraiso Intake, and to a certain extent even at the existing Gamboa Intake, becomes quite turbid, and this increases loading on filters and reduces the effective capacity of the existing Miraflores treatment plant to meet the peak demands presently being imposed.
2. Labor costs for operation at either Paraiso or Gamboa could be higher than at Madden Lake since IDAAN operating personnel would be working within the Zone and could be subject to its higher salary scale.
3. It is anticipated that the Canal will be widened sometime within the next 25 years even if a sea level canal were not to be constructed through the present canal area. Such widening could necessitate the removal of an Intake at Paraiso. Thus Paraiso as a site for a new water system is only a short-term choice for a long-term project since the system to be constructed will form the principal water supply source for the metropolitan Panama City area with its projected population of 820,000 by 1990, the period to be served by the proposed new facilities.
4. If a sea level canal were to be constructed along the route of the present canal alignment (and this could well become a reality), this would also require the relocation of the intake system at Paraiso resulting in disruptions to the water supply service to Panama City.

The increased volume of traffic using the Canal is significant. Approximately 52 million gallons of water are spilled out to sea for every transit, and more ships are going through the Canal today than were expected until about 1970.

Ocean-going vessel traffic over the past seventeen years is presented below:

	<u>Year.</u>	<u>Average Ships Daily</u>
	1950	16.0
	1960	30.2
July	1967	42.0
Aug.	"	39.5
Sept.	"	38.9
Oct.	"	38.0

Memorandum of Conversation

Place: Panama Canal Company, Administration Bldg.

3

At the conclusion of the meeting, all persons present agreed that, based on the above information, an intake system located at Paraiso would not be a reasonable alternative to a system with its intake located at Madden Lake. Rational planning at this time for a new system to serve the future needs of Panama City requires consideration and evaluation based on the alternate which will provide the surest and most positive uninterrupted service.

Using the area in the immediate vicinity of the Canal as a source, the alternate that could most nearly approach conditions of safety and security of Madden Lake would be that with its intake at Gamba.

c.c. Mr. P. Glaessner  
Mr. J. Megellas  
Mr. H. Ackerman  
Mr. W. Ketner  
Mr. M. Eshleman  
Miss G. Stander  
Mr. Carl Browne  
Mr. K. Kohler, Jr.  
Mr. R. Peake

CD: NCohen-dbd/10/26/67  
yf/10/27/67

UNITED STATES OF AMERICA Page 4 of 6  
AGENCY FOR INTERNATIONAL DEVELOPMENT  
U. S. AID MISSION TO PANAMA

P. O. BOX "J"  
PALLA CANAL ZONE

August 29, 1967.-

MEMORANDUM:

TO: THE FILES

FROM:

Norman Cohen  
Development Loan Officer

SUBJECT: Proposed Loan - Panama City Water Supply

Charles Stevens, Bill Gardner and I met with Col. Betts of the Panama Canal Water Authority on the morning of August 24 to discuss the subject proposal. We raised with him several crucial questions.

1. The first question dealt with the maximum amount of water which could be obtained from the Miraflores system. Col. Betts advised us that while he could not give us a definite statement as to the Zone's obligation to Panama City, he believed that previous statements indicated that the maximum was 30 million gallons daily (MGD). He felt that it was reasonable to assure the City at least 10-20 MGD for an indefinite period, but noted that this projection depended on many factors, such as growth of the demand area, availability of water supply, etc. The maximum capacity of the system is 45 MGD with no further proposed expansion, and pumping water at this level, such as is being done now, leaves no room for emergency water needs.

He stated that should IDAAN wish to fully utilize its new system leaving the Zone system as reserve, other factors would have to be considered. For any guaranteed water reserve, there would be certain charges involved necessary to cover the maintenance of facilities. Whether these charges were borne by the Zone, IDAAN or both, he was not able to say.

Col. Betts also noted that when Panama reduces its take of water from the Zone, the unit cost per 1,000 gallons of plant production would necessarily rise. Whether this increased cost would be passed on to IDAAN for the water which it continued to use is not known.

- 2 -

2. We then asked Col. Betts if he could provide us with some reasons for locating the new project at Madden Lake and not at Paraiso. He gave the following reasons:

- a. Damages to and within the Gaillard Cut could affect the quality and supply of water to the new system. He noted that accidents have occurred in the Cut.
- b. Heavier traffic now going through the Canal raises the risk of damage, fire and water contamination. There recently was an accident in one of the lock areas which caused jet fuel to be dumped into the water. He commented that the Canal was lucky to have avoided contamination.
- c. There is continuous dredging in the Cut which could cause slides affecting the water supply and the electric power plant.
- d. A new water system at Paraiso introduces into the Canal another critical point which limits the alternatives to increasing future capacity in view of the proposed canal improvements to handle the larger traffic volume. This is a time when all efforts, Panamanian and U.S. alike, are bent to developing ways of increasing the capacity.
- e. The rising volume of traffic in the Canal Zone and the larger ships using the Canal affect the ability of the Canal Zone to handle the traffic and could affect any guaranty of the amount of water needed by the water plant. A new water system at Paraiso aggravates the current situation since at this time the full effect of the increase in traffic in the Canal, together with proposed improvements, is still unknown.
- f. Because of the above noted potential problems, Col. Betts felt that a new intake works in the Canal area would be better placed at Gamboa than at Paraiso. If this were done, the cost of a project at Paraiso would be over \$24,000,000, which is \$3,000,000 higher than the Madden Lake project. The present Canal system operates with two intakes, one at Paraiso and a second at Gamboa.

- 3 -

3. We asked Col. Betts if there was any plan to pump salt water into the Canal in the dry season in order to maintain a satisfactory level of water for safe passage of ships. He stated that in order to reach the maximum capacity of the Canal at some unknown time in the future, it may be necessary to pump in salt water. If this were done, the probability is that salt water would come in through the Atlantic side which would have little effect on any intake works located at Gamboa. However, this conclusion is subject to further investigation and analysis.

cc: Messrs. Buenaman  
Charles Stevens  
W. H. Ketner

PANAMA'S REPUBLIC OF PANAMA  
 REPORT ON WATER SUPPLY  
Estimated Annual Costs - First Stage Construction  
56 MGD Madden Lake Project  
Maximum Use of New Plant

UNCLASSIFIED  
 ANNEX II  
 EXHIBIT 6

Year	Estimated Annual Costs - \$1,000					Total
	Fixed Charges	Power	Chemicals	Personnel	Maintenance	
1972	640	397	196	183	236	1652
1973	640	417	205	183	236	1681
1974	1528	437	214	183	236	2598
1975	1528	457	223	183	236	2623
1976	1528	476	232	183	236	2655
1977	1528	490	240	183	236	2677
1978	1528	504	257	183	236	2708
1979	1528	518	263	183	236	2728
1980	1528	518	263	193	236	2738
1981	1528	518	263	193	236	2738
1982	1528	518	263	193	236	2738
1983	1528	518	263	193	236	2738
1984	1528	518	263	193	236	2738
1985	1528	518	263	193	236	2738
1986	1528	518	263	193	236	2738
1987	1528	518	263	193	236	2738
1988	1528	518	263	193	236	2738
1989	1528	518	263	193	236	2738
1990	1528	518	263	193	236	2738
1991	1528	518	263	203	236	2108
1992	888	518	263	203	236	2108
1993	888	518	263	203	236	2108
1994	888	518	263	203	236	2108
1995	888	518	263	203	236	2108
1996	888	518	263	203	236	2108
1997	888	518	263	203	236	2108
1998	888	518	263	203	236	2108
	35,000	13,538	6,827	5,211	2,372	66,948

NOTES:

- 1) Electric Power Average Rate = 1.71 cents per KWH (1972) 1.79 cents per KWH (1980)
- 2) Average Chemical Costs (Per Pan Canal Company) = \$12.85 per million gallons
- 3) Fixed Charges on system including connection with trunk main network, and trunk mains required solely to enable and balance flow from new source.
- 4) Fixed charges figures on basis \$8.0 million at 6% for 20 years and \$15.0 million at 3-1/2 percent for 30 years (5 year grace period). Interest capitalized in both instances.

UNIT COSTS  
Per 1000 gallons

The capital cost of the network of trunk mains and distribution piping is regained by assessment against property owners. The capital cost of the supply system and operating costs are recovered from the unit volume rate charged to customers. The portion of the unit volume cost chargeable to the project for which financing is requested is determined as follows. In this analysis the proposed new trunk mains are considered as a portion of the new supply system.

1. From startup in 1972 to capacity in 1979 total projected consumption is 143 billion gallons of water. Over the same period total fixed and operating costs are \$19,326,000. This indicates an average unit cost of 13.5¢ per thousand gallons.
2. At peak production of 56 MGD, maximum operating costs are \$1,220,000 per year, which indicates operating costs of 6¢ per thousand gallons. This also is the average operating cost.
3. Over the period of debt service (through 1998) total fixed and operating costs are \$66,948,000. Over the same period a total consumption of 531 billion gallons of water is projected. This indicates an overall average cost of 12.5¢ per thousand gallons.

UNCLASSIFIED  
ANNEX 11  
EXHIBIT 8

COST - BENEFIT RATIO  
FOR MADDEN LAKE  
PROJECT 56 MGD  
MAXIMUM USE OF NEW PLANT

MADDEN LAKE - 56 MGD - MAXIMUM USE OF NEW PLANT	1.00
MADDEN LAKE - 56 MGD - MAXIMUM USE OF MIRAFLORES PLANT	1.07
GAMBOA - 56 MGD - MAXIMUM USE OF NEW PLANT	1.10
GAMBOA - 56 MGD - MAXIMUM USE OF MIRAFLORES PLANT	1.17

COST BENEFIT ANALYSIS  
Trunk Main Link to Old West End  
of City

First Cost		\$ 150,000
Operations and Maintenance		4% per annum
Terms of financing:		65% at 3- $\frac{1}{2}$ % 30 year repayment - 5 year grace period
		35% at 6% 20 year repayment Interest capitalized in both instances
Annual cost	=	debt service plus operations and maintenance
	=	11,900 + 6,000
	=	17,900. per annum
Benefits	=	average daily flow x days per year x net difference in rate (3.3¢ )
	=	8.6 MGD x 365 x \$.033/1000G
	=	\$103,500 per annum
Benefit/Cost ratio	=	\$103,500/17,900 = 5.8 : 1



PANAMA  
GROSS NATIONAL PRODUCT  
1960-1966  
(IN MILLIONS OF DOLLARS - CURRENT MARKET PRICES)

<u>YEAR</u>	<u>GNP</u>	<u>PERCENT CHANGE</u>
1960	407.6	-
1961	449.7	+ 10.3
1962	492.4	+ 9.5
1963	543.5	+ 10.4
1964	571.6	+ 5.2
1965	630.4	+ 10.3
1966	697.8	+ 10.7

Source: Dirección de Estadística y Censo

PANAMA  
Employment and Unemployment  
(In Thousands)

<u>Year</u>	<u>Economically <sup>1/</sup> Active</u>	<u>Employed</u>	<u>Unemployed</u>	<u>Under- Employed</u>	<u>Percent Unemployed</u>	<u>Percent Under-Employed</u>
1960	346	313	33	N.A.	9.5	---
1963	374	354	20	34	5.3	9.1
1964	377	352	25	34	6.6	9.0
1965	393	364	29	28	7.4	7.1
1966	404	384	20	34	4.9	8.4

1/ Defined as a person 10 years of age or more seeking employment.

N.A. - Not available.

Source: Dirección de Estadística y Censo, 1967.

PANAMA

Employment and Unemployment

Metropolitan Area <sup>1/</sup>  
(In Thousands)

<u>Year</u>	<u>Economically <sup>2/</sup></u> <u>Active</u>	<u>Employed</u>	<u>Unemployed</u>	<u>Under-</u> <u>Employed</u>	<u>Percent</u> <u>Unemployed</u>	<u>Percent</u> <u>Under-Employed</u>
1960	158	135	23	N.A.	14.5	--
1963	170	153	17	25	10.0	14.7
1964	174	155	19	25	10.9	14.4
1965	185	162	23	21	12.4	11.3
1966	193	177	16	25	8.3	12.9

<sup>1/</sup> The Metropolitan Area is comprised of the districts of Arraijan, Capira, La Chorrera, Panama and part of Cheop, in the Province of Panama; and Colon, Chagres, Portobelo and Santa Isabel in the Province of Colon.

<sup>2/</sup> Defined as a person 10 years of age or more seeking employment.

N.A. - Not available.

Source: Dirección de Estadística y Censo, 1967.

PANAMA  
GROSS INVESTMENT & DOMESTIC SAVINGS  
1960 - 1966 <sup>a/</sup>  
(MILLIONS OF DOLLARS)

	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>
<b>Private Sector</b>							
<b>Total</b>	56.4	67.1	72.2	80.7	74.6	91.0	135.1
(of which fixed)	(49.4)	(58.7)	(61.3)	(69.6)	(62.3)	(78.0)	(121.6)
<b>Public Sector</b>							
<b>Total</b>	11.4	21.3	25.1	27.8	26.2	23.1	20.1
(of which fixed)	(12.0)	(21.7)	(24.2)	(27.0)	(25.5)	(22.1)	(20.5)
<b>Grand Total</b>	67.8	88.4	97.3	108.5	100.8	114.1	155.2
(of which fixed)	(61.4)	(80.4)	(85.5)	(96.6)	(87.8)	(100.1)	(142.1)
<b>Gross Investment</b>							
<b>As % of GNP</b>							
(PANAMA)	16.6	19.7	19.8	20.0	17.6	18.1	22.2
<b>Gross Investment</b>							
<b>As % of GNP</b>							
(18 Latin American							
Republics)	18.5	19.0	18.1	17.1	18.1	17.6	17.8
<b>Savings (Domestic)</b>							
<b>As % of GNP</b>							
(PANAMA)	8.9	13.9	15.4	15.1	14.2	14.0	17.4

<sup>a/</sup> Includes Gross fixed Investment plus change in inventories

Sources: GOP National Income Accounts (Census & Statistics) and Latin American Economic Growth Trends (AID), October, 1967

PANAMA  
DOMESTIC REVENUES AND ORDINARY EXPENDITURES OF THE CENTRAL GOVERNMENT  
1960 - 1967  
( IN MILLIONS OF DOLLARS )

	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u> <sup>a/</sup>
<b>ORDINARY REVENUES, TOTAL</b>	<u>58.0</u>	<u>62.9</u>	<u>67.6</u>	<u>69.1</u>	<u>75.6</u>	<u>86.5</u>	<u>100.3</u>	<u>112.7</u>
<b>Tax Revenues, Total</b>	<u>44.3</u>	<u>47.6</u>	<u>54.1</u>	<u>55.0</u>	<u>60.1</u>	<u>69.7</u>	<u>81.4</u>	<u>90.7</u>
Imports	19.4	20.7	21.5	18.2	17.3	19.6	21.3	24.0
Income & Profit	10.8	10.7	14.9	15.6	18.5	22.2	29.7	32.5
Property	2.7	3.3	3.5	3.7	3.9	4.3	4.4	4.5
Consumption	5.7	6.1	6.8	8.9	11.4	12.6	13.7	14.6
Other	5.7	6.8	7.4	8.6	9.0	11.0	12.3	15.1
<b>Non-Tax Revenues, Total</b>	<u>13.7</u>	<u>15.3</u>	<u>13.5</u>	<u>14.1</u>	<u>15.5</u>	<u>16.8</u>	<u>18.9</u>	<u>22.0</u>
Public Enterprises	5.2	6.5	6.9	7.8	8.7	10.0	11.2	13.3
Other	8.5	8.8	6.6	6.3	6.8	6.8	7.7	8.7
<b>ORDINARY EXPENDITURES</b> <sup>b/</sup>	<u>63.7</u>	<u>66.5</u>	<u>67.3</u>	<u>77.2</u>	<u>80.8</u>	<u>86.2</u>	<u>98.4</u>	<u>113.6</u>
Personnel	34.9	36.0	36.0	40.2	42.6	45.2	58.8	62.3
Operation	28.3	29.3	27.6	32.3	33.7	36.4	37.4	43.8
Capital Outlay	0.5	1.2	3.7	4.7	4.5	4.6	2.2	7.5

<sup>a/</sup> USAID/P Estimates based on Preliminary Data

<sup>b/</sup> Excludes payments on Accrued Floating Debt

Source: Dirección de Estadística y Censo

UNCLASSIFIED  
ANNEX 11  
EXHIBIT 14

PANAMA  
BALANCE OF PAYMENTS  
1960 - 1967  
(IN MILLION OF DOLLARS - CURRENT MARKET PRICES)

	1960	1961	1962	1963	1964	1965	1966 <sup>a/</sup>	1967 <sup>b/</sup>
<b>I</b> <u>CURRENT TRANSACTIONS</u>	- 33.7	- 27.6	- 22.7	- 25.0	- 15.0	- 22.0	- 26.4	- 30.4
<b>A.</b> <u>GOODS &amp; SERVICES</u>	- 34.4	- 31.6	- 22.6	- 25.2	- 15.2	- 25.9	- 28.3	- 32.9
1. Exports	123.3	140.2	175.6	195.7	210.3	228.7	253.5	268.7
2. Imports	157.7	171.8	198.2	220.9	225.5	254.6	281.8	301.6
<b>B.</b> <u>TRANSFER PAYMENTS (Net)</u>	2.7	4.0	- 0.1	0.2	0.2	3.9	1.9	2.5
<b>II</b> <u>CAPITAL ACCOUNT</u>	29.4	38.8	34.6	30.5	33.0	22.7	31.5	34.7
<b>A.</b> <u>PRIVATE SECTOR (Net)</u>	14.6	32.2	29.8	11.2	6.1	10.1	12.9	19.1
1. Long-term (Net)	15.6	32.6	25.6	13.1	2.9	13.2	15.4	21.6
2. Short-term (Net)	- 1.0	- 0.4	4.2	- 1.9	3.2	- 3.1	- 2.5	- 2.5
<b>B.</b> <u>PUBLIC SECTOR</u>	8.3	- 2.5	4.1	24.8	3.7	7.2	10.9	14.5
1. Loan Disbursements	7.8	3.2	8.0	22.6	8.4	10.6	14.5	17.0
2. Loan Repayments	- 0.7	- 0.8	- 2.7	- 1.2	- 2.2	- 3.0	- 3.1	- 1.9
3. Other	1.2	- 4.9	- 1.2	3.4	- 2.5	- 0.4	- 0.5	- 0.6
<b>C.</b> <u>CHANGE IN MONETARY RESERVES</u>	6.5	9.1	0.7	- 5.5	23.2	5.4	7.7	1.1
<b>III</b> <u>NET ERRORS &amp; OMISSIONS</u>	4.3	- 11.2	- 11.9	- 5.5	- 18.0	- 0.7	- 5.1	- 4.3

<sup>a/</sup> Revised Estimates

<sup>b/</sup> USAID/Panama Estimates

Source: Dirección de Estadística y Censo; USAID/Panama

UNCLASSIFIED  
ANNEX 11  
EXHIBIT 15

PANAMA

EXPORTS OF GOODS AND SERVICES

1960 - 1967

(In Million of Dollars - Current Market Prices)

	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u> <sup>a/</sup>	<u>1967</u> <sup>b/</sup>
<u>COMMODITIES</u>	<u>39.35</u>	<u>41.35</u>	<u>59.81</u>	<u>72.55</u>	<u>82.00</u>	<u>92.61</u>	<u>104.10</u>	<u>106.58</u>
1. Bananas	18.16	20.13	20.13	25.07	29.13	39.61	44.50	48.29
2. Refined Petroleum	-	-	13.85	23.61	24.94	23.07	25.91	21.84
3. Shrimp	4.99	5.85	7.94	6.17	7.40	7.78	9.25	9.33
4. Coffee	1.11	0.26	1.41	0.39	1.45	0.70	0.60	0.60
5. Cocoa	0.77	0.51	0.48	0.45	0.38	0.24	0.20	0.16
6. Sugar	0.40	0.78	0.53	1.56	2.49	2.12	1.56	2.00
7. Re-exports	1.38	1.88	1.92	0.79	0.94	1.20	0.64	.78
8. Other	12.54	11.94	13.55	14.51	15.27	17.89	21.44	23.58
<u>SERVICES</u>	<u>83.97</u>	<u>98.82</u>	<u>115.76</u>	<u>123.12</u>	<u>128.30</u>	<u>136.07</u>	<u>149.40</u>	<u>162.08</u>
1. Freight & Insurance	0.01	0.01	0.03	0.06	0.05	0.07	0.08	0.09
2. Other Transportation	6.42	6.93	8.24	9.51	12.21	14.62	15.90	17.80
3. Travel	25.09	29.86	34.98	35.01	32.61	38.31	42.34	46.64
4. Investment Income	2.25	2.50	2.50	2.50	5.27	2.50	2.50	2.50
5. Government	2.38	3.01	3.49	5.66	6.84	7.98	9.15	10.12
6. Other Services	47.82	56.51	16.52	70.38	71.32	72.59	79.43	84.93
<u>TOTAL EXPORTS</u>	<u>123.32</u>	<u>140.17</u>	<u>175.57</u>	<u>195.67</u>	<u>210.30</u>	<u>228.68</u>	<u>253.50</u>	<u>268.66</u>

<sup>a/</sup> Revised Estimates

<sup>b/</sup> USAID/Panama Estimates

Source: Dirección de Estadística y Censo

PANAMA

IMPORTS OF GOODS AND SERVICES

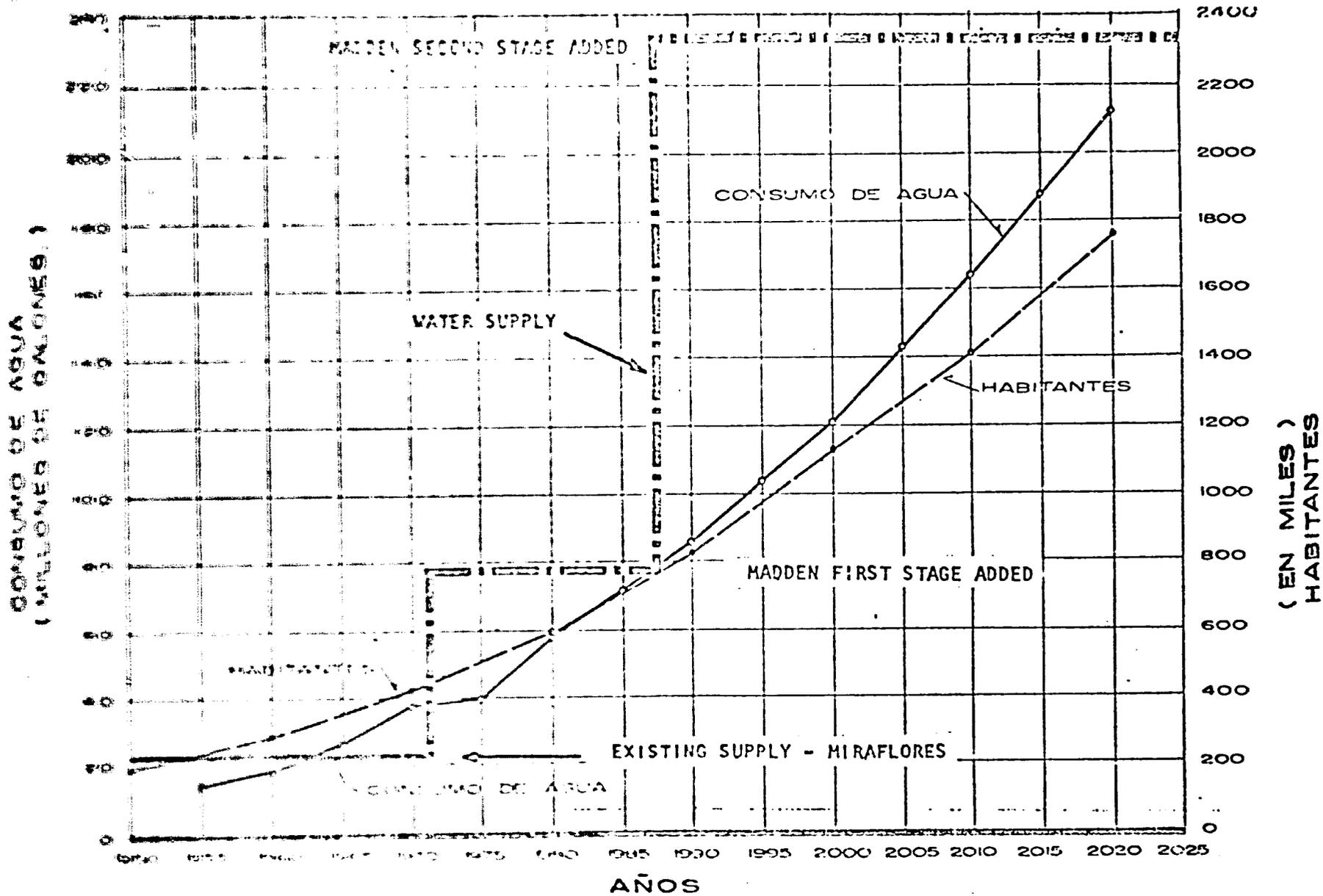
1960 - 1967  
(In Million of Dollars - Current Market Prices)

	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966 a/</u>	<u>1967 b/</u>
<u>COMMODITIES</u>	<u>109.09</u>	<u>123.83</u>	<u>144.34</u>	<u>163.35</u>	<u>167.76</u>	<u>191.77</u>	<u>217.42</u>	<u>233.59</u>
1. Food Products	13.26	15.08	14.65	15.93	18.35	17.08	18.58	18.22
2. Beverages & Tobaccos	2.82	2.80	3.82	1.49	1.39	1.78	1.94	2.00
3. Raw Materials	1.05	1.47	1.79	2.17	2.67	2.13	2.09	2.15
4. Fuels & Mineral Lubricants	10.81	11.04	27.00	37.76	35.47	40.35	47.59	48.04
(of which: Crude Petroleum)	-	-	(17.1)	(33.03)	(33.72)	(38.46)	(46.08)	(46.12)
5. Fats & Oils	0.23	0.43	0.45	0.43	0.55	0.60	1.11	1.09
6. Chemical Products	11.37	13.25	13.80	15.22	16.80	18.15	19.42	23.12
7. Manufactures	44.65	49.34	51.70	58.37	57.94	69.60	73.86	78.07
8. Machinery & Equipment	24.14	30.27	31.83	31.27	32.12	39.88	49.72	57.75
9. Miscellaneous	0.76	0.15	0.79	0.71	2.47	2.20	3.11	3.15
<u>SERVICES</u>	<u>48.61</u>	<u>47.97</u>	<u>53.90</u>	<u>57.52</u>	<u>57.74</u>	<u>62.81</u>	<u>64.36</u>	<u>68.00</u>
1. Freight & Insurance	13.37	14.98	17.87	17.32	16.99	19.59	20.90	21.50
2. Other Transportation	3.75	4.02	5.03	5.81	6.02	5.74	5.43	5.50
3. Travel	7.07	7.44	7.15	7.88	10.31	10.02	11.76	12.50
4. Investment Income	12.69	10.42	9.96	11.14	10.50	17.67	15.91	17.00
5. Government	2.82	4.10	5.07	7.67	5.26	2.67	3.36	3.50
6. Other Services	8.91	7.01	8.82	7.70	8.66	7.12	7.00	8.00
<u>TOTAL IMPORTS</u>	<u>157.70</u>	<u>171.80</u>	<u>198.24</u>	<u>220.87</u>	<u>225.50</u>	<u>254.58</u>	<u>281.78</u>	<u>301.59</u>

a/ Revised Estimates

b/ UNASIS/Panama Estimates

Source: Dirección de Estadística y Censo



CIUDAD DE PANAMA

EXPECTATIVA DE CONSUMO DE AGUA Y CRECIMIENTO DE POBLACION

WATER SUPPLY DATA ADDED

ESTADO DE CUENTAS  
FINANCIAS  
AL 30 DE NOVIEMBRE

ACTIVO

<b>Plazo e Inmovilización:</b>			
Instalaciones - Inmuebles	17,073,421.05		
Instalaciones - Mobiliarios	4,231,423.72		
	21,304,844.77		
<b>Reserva: Depreciación Acumulada</b>	<b>11,752,375.33</b>	14,157,155.71	
		296,006.53	
<b>Maquinaria y Equipo</b>	<b>173,177.79</b>		
<b>Reserva: Depreciación Acumulada</b>	<b>42,783.72</b>	90,776.07	
<b>Equipo Rodante</b>	<b>232,731.38</b>		
<b>Reserva: Depreciación Acumulada</b>	<b>124,313.38</b>	108,383.80	
<b>Otros Activos</b>		70,532.29	
<b>Reservaciones Varias</b>		34,731.75	
<b>Equipo Varias</b>		107,525.99	
<b>Equipo de Sustitución</b>		401,790.17	
<b>Reservaciones en Proceso</b>	<b>9,544,663.28</b>	24,839,095.99	
<b>Plazo para reconocimiento:</b>			
<b>Depositos Bancarios</b>		170,904.90	
<b>Reservas:</b>			
<b>Reservas en Caja y Bancos</b>		209,944.14	
<b>Reservas por Cobrar:</b>			
Agua - Vig. Contrata	376,047.69		
Agua - Vig. Explicite	749,313.09		
Gasolina Nacional	309,962.89		
<b>Alquileres Pendientes-Comunidades de Agua</b>	<b>(200,542.59)</b>		
<b>Res. para Ingresos Recaudables</b>	<b>(206,798.28)</b>	762,981.90	
<b>Res. de Val. Vig. Contrata</b>	<b>134,429.52</b>		
<b>Res. de Val. Vig. Explicite</b>	<b>408,093.96</b>		
<b>Res. de Val. Gub. Nacional</b>	<b>1,208.22</b>		
<b>Alquileres Pendientes Res. de Val.</b>	<b>(14,327.52)</b>	521,398.08	
<b>Reservación de Instalaciones</b>		8,592.36	
<b>Reserv. en Res. Crédito Fidei</b>		39,922.11	
<b>Res. de Val. de construcción</b>	<b>369,426.03</b>	17,091.01	
<b>Reserva: Reservas para ajustes</b>	<b>( 82,283.87)</b>	300,116.16	
<b>Res. de Ingresos y Gastos de Ofic.</b>		11,773.93	
<b>Reservación en Garantía</b>		304.00	
<b>Reserva reserva por anticipado</b>		2,591.10	
<b>Reserva reservas y a otras</b>		1,222.25	1,780,470.27
<b>Reservado:</b>			
<b>Gastos en M. Operativas</b>	1,940.71		
<b>Gastos Reservados Varias</b>	2,319.37		
<b>Gastos en Suspense Fidei</b>	183,096.44		
<b>Gastos a Reservas acumuladas</b>	<b>8,212.24</b>	197,628.78	
<b>TOTAL DEL ACTIVO</b>			
			\$ 26,924,100.00

Y ALICIA DEL ROSARIO MARIQUINIS  
SITUACION  
DE 1967

PASIVO

<b>Plazo:</b>			
Bonos por Pagar	2,101,170.00		
<b>Menos: Bonos IDIAN Serie "D" Edif. redirible por el estado</b>	<b>326,400.00</b>	1,774,770.00	
Préstamo por Pagar I.C.A.			1,421,057.05
Préstamo por Pagar C.H.B.			700,621.42
Préstamo por Pagar B.I.D.			2,665,330.00
Préstamo por Pagar A.I.D.		5,756,541.89	12,318,330.00
<b>Patrimonio del IDAAN:</b>			
Saldo al inicio de operaciones enero 1962		7,740,286.22	
Reservaciones Capitalizable - Acumuladas		2,601,357.79	
Aporte Estatal		1,673,410.62	12,015,095.63
<b>Corriente:</b>			
Banco Nacional - Sobregiro			179,136.89
<b>Cuentas por Pagar:</b>			
Panamá Canal Co.	388,397.65		
Gobierno Nacional	10,933.11		
Otros	129,705.77		529,036.53
Contratos por Pagar			684,858.46
Ordenes de Compras Emitidas y Pendientes	355,358.97		
<b>Menos: Pendientes de Recibir</b>	<b>141,964.26</b>		231,394.61
Depositos Recibidos en Garantía			7,628.31
Deducciones Varias			256,551.93
Retenciones a/Contrato por Pagar	414,298.68		
<b>Menos: Retenciones de % a/Contrato por Pagar pagadero por el Estado</b>	<b>36,784.62</b>		377,514.06
Sueldos por Pagar			1,915.67
Intereses por Pagar Acumulados	143,054.16		
<b>Menos: Int. a/Bonos serie "D" Edificio</b>	<b>1,632.00</b>		141,422.16
Alquileres por Pagar			5,070.00
Cuenta en Suspense - Crédito			16,188.56
Préstamo por Pagar C.H.B. No.2			250,000.00
Créditos Diferidos Varias			16.83
			2,660,734.01
<b>TOTAL CAPITALIZACION Y PASIVO</b>			
			<u>26,924,100.00</u>

INSTITUTO DE ACUEDUCTOS Y ALCANTARILLADOS NACIONALES

UNCLASSIFIED  
ANNEX II  
EXHIBIT 20

ESTADO DE INGRESOS Y GASTOS ( PRELIMINAR )

AL 31 DE DICIEMBRE DE 1967

INGRESOS:

Ingresos Básicos:

Venta de Agua - Facturación	4,559,768.43	
Menos: Descuentos	<u>337,606.03</u>	4,222,082.40
Tasa de Valorización		634,897.28

Otros Ingresos:

Servicios de Instalaciones	84,741.29	
Servicios Especiales	1,282.00	
Multas y Recargos	67,411.20	
Superavit en Compra y Venta de Bonos	1,673.28	
Superavit en Venta de Equipo	275.35	
Ingresos por conexiones	165.00	
Otros Ingresos	<u>8,740.64</u>	<u>159,288.76</u>

TOTAL DE INGRESOS:

5,016,268.44

Gastos de Operación:

Mantenimiento y Operación	2,523,630.78
Diseño y Estudio	55,793.06
Inspección	45,039.75
Administración	669,608.34
Depreciaciones	<u>569,064.85</u>

TOTAL GASTOS DE OPERACION

3,863,159.20

Utilidad Neta en Operación:

1,153,120.10

Otros Gastos:

Intereses s/Bonos	107,628.20	
Intereses Cta. de Crédito	12,576.82	
Intereses s/Préstamos	575,963.20	
Comisiones pagadas en Venta de Agua	817.67	
Contribuciones Barias	<u>116.85</u>	<u>474,608.20</u>

INGRESOS NETOS

728,536.80

Menos: Pérdida en Incendio

3,014.28

TOTAL ACREDITADO A VALOR NETO

725,522.52

### INSTITUTO DE ACUEDUCTOS Y ALCANTARILLADOS NACIONALES

CUADRO N.º 2  
DISTRIBUCION DE LA POBLACION Y ANEXOS A LOS ALCAANTARILLADOS EN LAS ZONAS URBANAS Y RURALES EN RELACION A LA POBLACION CUBIERTA

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UBICACION	POBLACION TOTAL	INSTALACION VIGENTE	INSTALACION CON MEDICION	POBLACION CUBIERTA	POBLACION NO CUBIERTA	% DE CUBIERTA
AGUASCALIENTES	358,100	12,000	10,770	246,200	111,900	68.75%
AMATEPEC	24,200	1,010	917	16,200	8,000	66.94%
AMATEPEC	2,000	250	239	1,315	685	65.75%
AMATEPEC	2,477	20	0	0	2,477	0%
AMATEPEC	18,130	1,810	1,415	10,850	7,280	59.88%
AMATEPEC	3,512	0	0	44	3,468	1.25%
AMATEPEC	3,341	254	144	2,177	1,164	64.86%
AMATEPEC	2,800	730	730	4,020	1,220	143.93%
AMATEPEC	4,922	350	350	280	4,642	5.69%
AMATEPEC	1,121	1,080	1,045	6,250	5,130	82.26%
AMATEPEC	6,007	150	0	850	5,157	14.16%
AMATEPEC	16,352	1,938	1,905	1,530	14,822	9.36%
AMATEPEC	3,501	558	558	3,000	501	85.72%
AMATEPEC	4,140	708	704	3,804	336	91.88%
AMATEPEC	2,030	0	40	522	1,508	25.71%
AMATEPEC	11,135	1,414	1,216	7,777	3,358	69.84%
AMATEPEC	4,160	100	140	1,644	2,516	39.52%
AMATEPEC	20,808	2,560	2,408	5,427	15,381	25.98%
AMATEPEC	12,020	908	691	4,960	7,060	41.27%
AMATEPEC	12,900	777	0	4,270	8,630	33.09%
AMATEPEC	2,001	104	94	1,067	1,934	53.32%
AMATEPEC	1,972	0	50	0	1,922	2.53%
AMATEPEC	787	0	15	0	772	1.90%
AMATEPEC	1,216	0	10	0	1,206	0.82%
AMATEPEC	1,530	0	127	0	1,403	9.17%
AMATEPEC	1,562	0	104	0	1,458	9.33%
AMATEPEC	964	0	164	0	800	83.10%
AMATEPEC	1,965	0	333	0	1,632	83.06%
AMATEPEC	1,455	0	125	0	1,330	91.41%
AMATEPEC	500	0	44	0	456	91.20%
AMATEPEC	2,288	0	306	0	1,982	86.62%
AMATEPEC	480	0	125	0	355	73.96%
AMATEPEC	1,184	0	125	0	1,059	89.44%
AMATEPEC	310	0	0	0	310	100%
AMATEPEC	1,110	0	66	0	1,044	93.96%
AMATEPEC	1,690	0	70	0	1,620	95.86%
AMATEPEC	1,884	0	85	0	1,799	95.49%
AMATEPEC	501	0	171	0	330	65.87%
AMATEPEC	516	0	35	0	481	93.23%
AMATEPEC	1,368	0	48	0	1,320	96.49%
AMATEPEC	427	0	200	0	227	53.16%
AMATEPEC	611	0	17	0	594	97.22%
AMATEPEC	1,419	0	100	0	1,319	92.95%
AMATEPEC	470	0	114	0	356	75.74%
AMATEPEC	581	0	60	0	521	89.84%
AMATEPEC	1,078	0	65	0	1,013	93.97%
AMATEPEC	788	0	0	0	788	100%
AMATEPEC	1,210	0	0	0	1,210	100%
AMATEPEC	1,010	0	0	0	1,010	100%
AMATEPEC	950	0	0	0	950	100%
AMATEPEC	860	0	0	0	860	100%
AMATEPEC	1,233	0	117	0	1,116	90.51%
AMATEPEC	650	0	75	0	575	88.46%
AMATEPEC	750	0	0	0	750	100%
AMATEPEC	0	0	0	0	0	0%
AMATEPEC	177	0	87	0	90	50.85%
AMATEPEC	1,175	0	60	0	1,115	94.89%
AMATEPEC	1,354	0	40	0	1,314	96.97%
AMATEPEC	628	0	0	0	628	100%
AMATEPEC	0	0	0	0	0	0%
AMATEPEC	200	0	12	0	188	94.00%
AMATEPEC	200	0	10	0	190	95.00%
TOTAL	873,411	43,931	34,734	3,220	870,191	367.7%

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CUADRO No. 1

**INSTITUTO DE AGRICULTURA Y ALGANTERRILLAS NACIONALES**

1958 - 1962

FINANCIAL STATEMENT OF THE INSTITUTION  
From 1958 to 1962 (Continued), by years  
(In thousands of dollars)

FINANCIAL STATEMENT OF THE INSTITUTION  
Para los años 1958 a 1962 (Inclusive), por años  
(En miles de dólares)

	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
<b>REVENUES</b>													
Net Sales	4,985	5,344	5,021	5,509	6,942	7,515	7,823	8,311	8,731	9,386	9,977	10,607	11,278
<b>EXPENSES</b>													
Operative Costs	2,589	2,669	2,782	2,930	3,763	3,949	4,141	4,342	4,569	4,788	5,015	5,253	5,502
Interest & Depreciation	139	115	122	127	123	149	147	154	162	170	178	187	194
Administrative and general expenses	778	719	724	777	822	878	919	924	1,032	1,055	1,116	1,172	1,221
<b>TOTAL OPERATIVE COSTS</b>	3,506	3,503	3,628	3,834	4,708	4,968	5,206	5,465	5,742	6,021	6,209	6,512	6,920
<b>OPERATING PROFIT BEFORE DEPRECIATION</b>	1,479	1,875	1,439	1,579	2,179	2,566	2,617	2,851	3,069	3,365	3,668	3,995	4,349
<b>DEPRECIATION</b>	107	91	74	71	70	70	70	70	70	70	70	70	70
<b>OPERATING PROFIT</b>	1,372	1,784	1,365	1,508	2,109	2,496	2,547	2,781	2,999	3,295	3,598	3,925	4,279
<b>FINANCIAL STATEMENTS</b>													
Interest	82	90	88	85	83	80	76	72	69	65	60	56	51
• FID (Inter - Rural)	—	—	103	170	96	92	87	85	79	74	70	68	61
• FID (Inter - Rural)	298	271	197	195	191	187	181	174	163	161	155	149	143
• FID (Inter - Rural) No. 1 (Guano Island)	—	—	14	14	13	13	12	12	11	11	10	10	9
• FID (Inter - Rural) No. 2 (Guano Island)	18	15	11	8	4	1	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 3 (Guano Island)	25	24	12	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 4 (Guano Island)	88	82	79	75	71	66	61	57	51	45	40	35	27
• FID (Inter - Rural) No. 5 (Guano Island)	42	40	35	31	26	24	20	16	12	9	5	—	—
• FID (Inter - Rural) No. 6 (Guano Island)	21	43	42	40	39	37	35	33	31	29	27	24	22
• FID (Inter - Rural) No. 7 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 8 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 9 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 10 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 11 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 12 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 13 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 14 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 15 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 16 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 17 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 18 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 19 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 20 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 21 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 22 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 23 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 24 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 25 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 26 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 27 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 28 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 29 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 30 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 31 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 32 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 33 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 34 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 35 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 36 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 37 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 38 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 39 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 40 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 41 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 42 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 43 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 44 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 45 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 46 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 47 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 48 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 49 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 50 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 51 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 52 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 53 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 54 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 55 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 56 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 57 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 58 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 59 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 60 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 61 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 62 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 63 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 64 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 65 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 66 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 67 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 68 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 69 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 70 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 71 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 72 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 73 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 74 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 75 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 76 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 77 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 78 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 79 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 80 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 81 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 82 (Guano Island)	—	—	—	—	—	—	—	—	—	—	—	—	—
• FID (Inter - Rural) No. 83 (Guano Island)	—												



ESTADOS DE CUENTAS Y BALANZOS NACIONALES

CUADRO No. 2

1948 - 1960

PROYECTOS DEL BALANCE DE CUENTAS Y CUENTAS (En millones de Bolívares)

PROYECTOS DEL BALANCE DE CUENTAS Y CUENTAS (En miles de Bolívares)

	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
<b>PASIVO</b>													
<b>Capital</b>													
Capital Fijo	24,807	25,420	26,228	27,201	28,201	29,201	30,201	31,201	32,201	33,201	34,201	35,201	36,201
Capital Variable	22,702	23,072	23,500	24,000	24,500	25,000	25,500	26,000	26,500	27,000	27,500	28,000	28,500
<b>Total Capital Fijo</b>	24,807	25,420	26,228	27,201	28,201	29,201	30,201	31,201	32,201	33,201	34,201	35,201	36,201
<b>Total Capital Variable</b>	22,702	23,072	23,500	24,000	24,500	25,000	25,500	26,000	26,500	27,000	27,500	28,000	28,500
<b>Total Capital</b>	47,509	48,492	49,728	51,201	52,701	54,201	55,701	57,201	58,701	60,201	61,701	63,201	64,701
<b>Reserva de Depreciación</b>	22,570	22,742	22,972	23,252	23,582	23,962	24,392	24,872	25,402	25,982	26,612	27,292	28,022
<b>Reserva para el Seguro</b>	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
<b>Total Pasivo</b>	72,079	73,234	74,600	76,453	78,283	80,163	82,093	84,073	86,103	88,183	90,313	92,503	94,723
<b>ACTIVO</b>													
<b>Activos de Inversión</b>													
Activos de Inversión	24,807	25,420	26,228	27,201	28,201	29,201	30,201	31,201	32,201	33,201	34,201	35,201	36,201
<b>Total Activos de Inversión y Activos de Inversión</b>	24,807	25,420	26,228	27,201	28,201	29,201	30,201	31,201	32,201	33,201	34,201	35,201	36,201
<b>Total Depreciación</b>	22,570	22,742	22,972	23,252	23,582	23,962	24,392	24,872	25,402	25,982	26,612	27,292	28,022
<b>Total Activo</b>	2,279	2,714	3,128	3,521	3,921	4,321	4,721	5,121	5,521	5,921	6,321	6,721	7,121
<b>Total Activo</b>	74,358	75,948	77,728	79,974	82,204	84,484	86,814	89,194	91,624	94,104	96,634	99,224	101,844
<b>NOTAS</b>													
<b>Reserva de Depreciación</b>	22,570	22,742	22,972	23,252	23,582	23,962	24,392	24,872	25,402	25,982	26,612	27,292	28,022
<b>Reserva para el Seguro</b>	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
<b>Total Activo</b>	24,807	25,420	26,228	27,201	28,201	29,201	30,201	31,201	32,201	33,201	34,201	35,201	36,201
<b>Total Pasivo</b>	49,551	50,528	51,456	53,252	54,701	56,201	57,701	59,201	60,701	62,201	63,701	65,201	66,701
<b>Total Activo</b>	74,358	75,948	77,728	79,974	82,204	84,484	86,814	89,194	91,624	94,104	96,634	99,224	101,844

• 1 Bolívar = 1 Dólar U.S. C.

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ANNEX II  
ENCLAVE 22  
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(Continued)

(In thousands of dollars)

**OPERATION**

**NET INCOME**

Basic Payable  
Loss Payable

	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Basic Payable	3,383	3,149	2,930	2,600	2,430	2,261	2,019	1,785	1,537	1,309	1,100	1,001	1,001	1,001	799
Loss Payable	21,032	21,652	22,272	22,793	24,313	25,332	26,352	27,372	28,392	29,412	30,432	31,452	32,472	33,492	34,512

**NET LOSS THIS YEAR**

	17,649	18,503	19,342	20,193	21,883	23,071	24,333	25,587	26,855	28,103	29,333	30,451	31,471	32,491	33,713
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**NET OF TAX**

Accumulated Net Savings  
Balance-January 1  
Net Savings - Jan. 1 to Dec. 31

Accumulated Net Savings	3,130	4,360	5,071	7,275	6,376	9,430	10,061	12,303	14,077	15,300	16,636	21,907	21,004	21,004	21,004
Balance-January 1	1,702	1,611	1,626	1,301	1,076	1,571	1,652	1,726	2,121	2,420	2,821	3,122	3,122	3,122	3,122
Net Savings - Jan. 1 to Dec. 31	4,260	3,071	7,275	6,376	9,430	10,061	12,303	14,077	15,300	16,636	21,907	21,004	21,004	21,004	21,004

**NET ASSETS**

At start of operations - Jan. 1, 1962  
Additional State Credits  
During this year  
In Previous years

At start of operations - Jan. 1, 1962	7,760	7,760	7,760	7,760	7,760	7,760	7,760	7,760	7,760	7,760	7,760	7,760	7,760	7,760	7,760
Additional State Credits	290	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600
During this year	237	1,272	2,272	3,272	4,272	5,272	6,272	7,272	8,272	9,272	10,272	11,272	12,272	13,272	14,272
In Previous years	8,967	9,967	10,967	11,967	12,967	13,967	14,967	15,967	16,967	17,967	18,967	19,967	20,967	21,967	22,967

**NET NET OF TAX**

	12,227	15,830	18,762	20,363	22,417	24,679	27,729	30,864	34,165	37,641	41,303	45,107	49,039	53,091	57,263
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**NET INVESTMENT**

	21,664	24,655	28,164	30,790	32,180	33,705	35,211	36,707	38,193	39,670	41,138	42,600	44,058	45,511	46,959
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**NET LIABILITIES**

Bank Deposits  
A/c Payable - Federal Civil Co. - water  
Other Accounts Payable-Various  
Post Due Interest Payable  
Bonds Redeemable in one year  
Loss Reservations due in one year

Bank Deposits	179	20	-	-	-	-	-	-	-	-	-	-	-	-	-
A/c Payable - Federal Civil Co. - water	293	293	293	293	293	293	293	293	293	293	293	293	293	293	293
Other Accounts Payable-Various	1,161	1,161	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160
Post Due Interest Payable	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176
Bonds Redeemable in one year	207	220	233	250	230	209	222	236	250	264	277	291	305	319	333
Loss Reservations due in one year	711	678	765	767	1,432	1,174	1,711	1,712	1,713	1,714	1,715	1,716	1,717	1,718	1,719

**NET NET INVESTMENT**

	2,207	2,467	2,290	2,426	1,291	2,216	2,264	2,491	2,440	2,490	2,376	2,425	2,321	2,321	2,321
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**NET INVESTMENT IN PROPERTY AND EQUIPMENT  
AND OTHER ASSETS**

	24,171	27,242	27,024	21,414	22,471	23,260	24,137	25,014	25,891	26,768	27,645	28,522	29,400	30,277	31,154
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\* 1 Dollar = 1 Dollar U.S. Cr.

2000/7966

(Continued)

(In units of dollars)

**OPERATION**

**NET INCOME**

Basic per Share  
Loss per Share

**NET LOSS THIS YEAR**

**NET OF TAX**

Accumulated Net Savings  
Balance - Dec. 31  
Savings - Dec. 1 to Dec. 31

**NET ASSETS**

At start of operations - Dec. 31, 1962  
Additional State Credits  
During this year  
In other operations

**NET NET OF TAX**

**NET INVESTMENT**

**NET LIABILITIES**

Bank Deposits  
A/c Payable - Federal Civil Co. - water  
Other Accounts Payable-Various  
Post Due Interest per Share  
Bonds Redeemable in one year  
Loss Reservations due in one year

**NET NET INVESTMENT**

**NET INVESTMENT IN PROPERTY AND EQUIPMENT  
AND OTHER ASSETS**

2000/7966

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ANNEX 11  
EXHIBIT 22  
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DEPARTMENT OF STATE  
AGENCY FOR INTERNATIONAL DEVELOPMENT  
ALLIANCE FOR PROGRESS  
WASHINGTON, D. C. 20523

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LA-CAEC/M-68/13

Minutes of Meeting of the  
CAPITAL ASSISTANCE EXECUTIVE COMMITTEE  
Thursday, October 5, 1967

James R. Fowler, Chairman

SUBJECT: PANAMA - Panama City Water Supply - IRR (LA-CAEC/P-68/17)

The Committee reviewed and approved this IRR as amended by TOAID A-188 and the LA/CD comments.

The following comments emerged for guidance during the intensive review:

1. The site selection and capacity issues: The benefit/cost ratio should justify the selection of the Madden Lake 56 MGD project compared with the most likely alternative project. The key question is the definition of the alternative. Therefore, the rationale for the choice of alternative with which Madden Lake is to be compared should be explicitly justified. All tangible benefits should be considered by the consultant insofar as possible. If the benefit/cost analysis for Madden Lake results in a negative figure and the Country Team nevertheless wishes to support this project, compelling alternative considerations will have to be established. (See Section I.E.)
2. It was agreed that IDAAN must be up to date on its recent debt to AID when the loan paper is presented. (See Section I.A.3.)
3. In view of IDAAN's involvement in a number of other projects, the loan paper should discuss IDAAN's administrative capacity to manage the new project. (See Section I.A.2. and 3.)

LA-CAEC/M-68/13

4. The loan paper should demonstrate the financial feasibility of the project and the financial soundness of IDAAN. The financial analyses should examine the adequacy and rationality of rates charged and the cash flow and financial projection should show sufficient earnings to cover debt service, operating expenses and maintenance. Use of surpluses should be accounted for and subsidies noted. The first step loan terms should be justified by cash flow and estimated project life. (See Section I.G.)
5. The suggested 35% GOP contribution to the project should be maintained as a minimum position and an attempt should be made to secure a higher contribution. (See Section I.G.)
6. The Bureau of the Budget representative was unable to attend the meeting; however, he offered the following comments on the IRR.
  - a. The priority of this project vis-a-vis other projects should be carefully considered. If there were only U.S. \$15.0 million of loan funds for Panama, would this loan be recommended. (See Section I.F.)
  - b. Why can't this project wait until the Canal Treaty issue is resolved? Could Panama do with less water for a time? (See Section I.F.)
  - c. BOB considers the 35% GOP contribution to be a minimum goal. (See Section I.G.)
  - d. BOB does not accept the Panama Program Memorandum justification of local costs financing. (See Section I.F.)
  - e. BOB questions the administrative capacity of IDAAN to handle the project. (See Section I.A.)

CERTIFICATION PURSUANT TO SECTION 611 (e) OF THE  
FOREIGN ASSISTANCE ACT OF 1961, AS AMENDED

I, James Megellas, the principal officer of the Agency for International Development in Panama, having taken into account, among other things, the maintenance and utilization of projects in Panama previously financed or assisted by the United States, do hereby certify that in my judgment Panama has both the financial capability and the human resources capability to effectively maintain and utilize the capital assistance project, Panama City Water Supply.

This judgment is based upon the Mission's long experience with IDAAN in the maintenance and operation of previously financed A.I.D. projects. There is at present five existing A.I.D. loans to IDAAN, only one of which has yet to commence implementation. For the other four loan projects, the USAID's records show that each is being operated and maintained in a satisfactory manner. For this proposed Water Supply Project, there will be prepared with the assistance of an engineering consulting firm, a detailed operating and maintenance program which IDAAN will be required to follow under a covenant in the Loan Agreement. IDAAN's maintenance program is discussed in Section 1 E. of the loan paper.

Regarding other U.S. assisted projects to Panama, it is my opinion that, in general, they are being maintained and utilized in a satisfactory manner.

  
JAMES MEGELLAS

March 15, 1968  
Date

DRAFT LOAN AUTHORIZATION  
Alliance for Progress Funds  
PANAMA: Panama City Water  
Supply System

Pursuant to the authority vested in the Deputy U.S. Coordinator, Alliance for Progress, by the Foreign Assistance Act of 1961, as amended, and the delegations of authority issued thereunder, I hereby authorize the establishment of a loan ("Loan") pursuant to Part I, Chapter 2, Title VI, Alliance for Progress, to the Instituto de Acueductos y Alcantarillados Nacionales ("Borrower") of not to exceed fifteen million United States dollars (\$15,000,000) for United States dollar and local cost of goods and services to assist in the construction of a new water supply system for Panama City, such system to be located in the vicinity of Madden Lake and having a normal capacity of 56 million gallons daily. Included as a part of this Loan is an amount not to exceed \$150,000 to be used to finance the cost of a study of water rates in the Republic of Panama and a study of IDAAN's organization, administration and operations, this Loan to be subject to the following terms and conditions:

1. Interest and Terms of Repayment:

- (a) Borrower shall repay the Loan to the Agency for International Development (A.I.D.) in United States dollars within thirty (30) years from the first disbursement under the Loan, including a grace period of not to exceed five (5) years. Borrower shall pay to A.I.D. in United States dollars on the disbursed balance of the Loan interest of three and one-half (3½) percent per annum, such interest to be capitalized during the grace period.
- (b) If prior to the end of the grace period the Government of Panama ("Government") so elects, Borrower shall fulfill its dollar obligation under the Loan by paying the Government in the currency of Panama the equivalent, determined as of a time and in a manner satisfactory to A.I.D., of the United States dollar amounts payable to A.I.D. under (a) above and in such event the Government shall pay to A.I.D.:

(i) The equivalent in United States dollars, determined as of a time and in a manner calculated to obtain repayment of all dollars disbursed plus interest, of all amounts paid to Government as follows:

(a) All interest immediately upon receipt subject to Government's right to retain all payments in excess of two (2) percent per annum during a grace period of not to exceed ten (10) years from the first disbursement under the Loan ("Government Grace Period") and all payments in excess of two and one-half (2½) percent per annum thereafter.

(b) Principal within forty (40) years from the first disbursement under the Loan, including the Government Grace Period.

(ii) Interest in United States dollars of two (2) percent per annum during the Government Grace Period, and two and one-half (2½) percent per annum thereafter on all amounts of outstanding principal paid by Borrower to Government from the respective dates of such payments of principal.

2. Other Terms and Conditions:

(a) Equipment, materials and services (except shipping and marine insurance) financed under the Loan shall have their source and origin in and be procured from the United States or Panama. Shipping financed under the Loan shall be procured from the United States, and marine insurance financed under the Loan shall be placed in the United States with a company authorized to do marine insurance business in any state of the United States.

(b) The Government shall guarantee repayment of the Loan in United States dollars.

(c) United States dollars utilized under the Loan to finance local costs shall be made available to the Borrower or its designee through the Special Letter of Credit procedure and shall be used only for procurement in the United States.

- (d) Prior to disbursement of funds for other than engineering services, the Borrower shall submit:
- (i) Evidence of arrangements for a study of IDAAN's water rates with a qualified firm acceptable to A.I.D.; and
  - (ii) evidence of arrangements for a study of IDAAN's organization, administration and operations with a qualified firm acceptable to A.I.D.

Paragraphs (i) and (ii), supra, may be handled jointly or severally in satisfying this condition precedent for the purposes of loan disbursement.

- (e) Prior to the disbursement of loan funds for construction, the Borrower shall have:
- (i) taken action to the extent of its legal capacity, to comply with the recommendations contained in the completed study of IDAAN's water rates, and will give written evidence that future actions recommended by the study will be taken on a prompt and timely basis;
  - (ii) taken action in accordance with recommendations contained in the completed study of IDAAN's organization, administration and operations, and will give written evidence that future actions recommended by the study will be taken on a prompt and timely basis;
  - (iii) submitted evidence of an agreement, expressed in writing, with the Panama Canal Company on the volume and cost of water to be taken from the Miraflores system up to the 1988-1990 period;
  - (iv) developed, ready for implementation, an operating and maintenance program for the system serving Panama City. This shall include the provision for facilities, necessary skilled staff and training of additional staff as may be required;
  - (v) submitted evidence that the full amount of IDAAN's contribution to the Project will be made available on a timely basis in order to assure completion of the Project within the scheduled period.

- (vi) evidence that it has obtained, or will obtain in accordance with a time schedule satisfactory to A.I.D., any real property rights including easements and rights-of-way, required for the Project; and
  - (vii) evidence of an agreement with the Panama Canal Company for the right-of-way on the use of Canal Zone property and for use of Madden Lake water to the extent necessary for this Project.
- (f) The Loan shall be subject to such other terms and conditions as A.I.D. may deem advisable.

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Deputy U.S. Coordinator  
Alliance for Progress

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Date